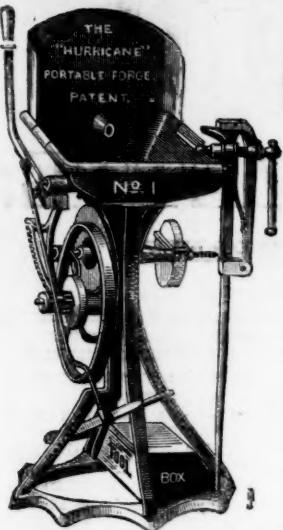


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a Tool Grinder (Emery),
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PROVINCIAL STOCK AND SHARE MARKETS.

ORNISH MINE SHARE MARKET.—Mr. JOHN CARTER, stock and dealer, Camborne (July 15), writes:—The share market has been steady during the past week, and the market closed firm to-day. South Frances shares have declined to 13*l.*, and South Crofton advanced to 15*l.*, buyers, on the cutting of the north lode in the 160 ft. cut. The tin standards on Tuesday were advanced to 8*s.* 8*d.*, a rise of 1*s.* per cwt. Closing quotations are subjoined:—Blue Hills, 4*s.* to 4*s.*; Carnarvon, 7*s.* to 7*s.*; Camborne, 2*s.* to 2*s.*; Cook's Kitchen, 7*s.* to 8*s.*; Crebor, 5*s.* to 5*s.*; East Pool, 35*s.* to 35*s.*; Mellanear, 4*s.* to 5*s.*; Monkland ordinary 6*d.*; Benhar and Cairntable Coal shares are each reduced 5*s.*, and Monkland ordinary 6*d.* Benhar Colliery shares have been a good deal affected by rumours at one time favourable, when they touched 4*s.*; but latterly by "bears" have been in, and sales have been pressed down to 3*s.*. The pig iron warrant market has again been active, and on a further rise in makers' prices and "bear" closing the price touched 5*s.*; however, until the demand increases, no great revival need be anticipated. Some think buyers are holding back; consequently, when confidence returns the demand may prove larger than is generally expected. Inca Hall and North Branchetree shares still offered, Antrim Iron Ore, A, are at 4*s.* 6*d.*; Bilbao Iron, 21*s.*; Bilson and Crump Meadow, 5*s.*; Bolckow, Vaughan, A, 7*s.* to 7*s.*; ditto, B, 10*s.*; ditto, stock, 12*s.* to 13*s.*; Charles Cannell and Co., 10*s.*; ditto 6*s.* per cent. debentures, 10*s.*; Chapel House Colliery, 25*s.*; Cardiff and Swansea, 35*s.* to 45*s.*; Chillington Iron, 8*s.* to 8*s.*; Clyde Coal, 50*s.* to 52*s.*; Consett Iron, 15*s.*; Chatterley Iron Ore—Chillington Iron, 10*s.* to 12*s.*; Ebbw Vale, 8*s.* Great Western Colliery, 8*s.*; Henry Briggs, A, 11*s.*; John Bagnall and Sons, 25*s.*; John Brown and Co., 15*s.* dis. ex div.; Leeds and Yorkshire Co-operative Coal, 60*s.*; Marcella Iron, 55*s.* to 57*s.*; Mersey Steel, 65*s.* dis.; Monkland Iron and Coal, 4*s.* to 4*s.*; ditto (pref.), 5*s.* to 5*s.*; Muntz's Metal, 52*s.* 6*d.* prem.; Northfield Iron, 10*s.*; Newport Abercarn Coal, 6*s.* to 7*s.*; Nerbuda Coal and Iron, 5*s.* to 7*s.* 6*d.*; Oakham Colliery (pref.), 5*s.*; Onions and Cleland 26*s.* to 27*s.*; Parkgate Iron, 8*s.* dis.; Pelsall Coal and Iron, 70*s.* dis.; Rhiwmill, 21*s.* to 23*s.* ex div.; Scottish Australian, 40*s.* to 45*s.*; ditto, new, 20*s.*; Sheepbridge Iron, 24*s.* dis.; Silkeston and Dodsworth, 35*s.* dis.; Sandwell Park Colliery, 17*s.*; Shotton Iron, 75*s.* to 85*s.*; Thorp's Barber Hall, 28*s.* to 30*s.*; Tredegar, B, 20*s.*; Ulverston, 15*s.* to 30*s.*; West Cumberland, 12*s.* to 13*s.*

Mr. J. S. DAVEN, mine shareholder, Redruth (July 15) writes:—Our market with a good improvement in prices, and has been firm throughout the week, but the amount of business doing has been but moderate. Carn Brea, close 30*s.*, higher than they were last week; Dolcoath, 35*s.*; East Pool, 35*s.*; Mellanear, 4*s.* to 5*s.*; New Cook's Kitchen, 7*s.* to 8*s.*; North Crofton, 15*s.* to 16*s.*; South Frances, 12*s.* to 13*s.*; Tincroft, 17*s.* to 18*s.*; South Crofton, 15*s.* to 16*s.*; West Frances, 14*s.* to 14*s.*; West Pevero, 8*s.* to 9*s.*; West Bassett, 16*s.* to 18*s.*; West Tolgas, 54*s.* to 56*s.*; West Seton, 20*s.* to 21*s.*; Wheal Pollicie, 3*s.* to 3*s.*; Wheal Bassett, 3*s.* to 3*s.*; Wheal Pevero, 30*s.* to 30*s.*; Wheal Kitty, 5*s.* to 5*s.*; Wheal Uny, 3*s.* to 3*s.*

Mr. J. H. REYNOLDS, stock and share broker, Redruth (July 15), writes:—The market is steady, and fair business is doing at quoted prices. The tin standards have been advanced 3*s.* Blue Hills, 4*s.* to 4*s.*; Botallack, 18*s.* to 20*s.*; Carn Brea, 7*s.* to 7*s.*; Cook's Kitchen, 7*s.* to 8*s.*; Dolcoath, 52*s.* to 53*s.*; East Pool, 35*s.* to 35*s.*; Herdofst, 3*s.* to 4*s.*; Fresh, 3*s.* to 3*s.*; Marke Valley, 2*s.* to 2*s.*; Mellanear, 5*s.* to 5*s.*; New Cook's Kitchen, 7*s.* to 8*s.*; North Crofton, 15*s.* to 16*s.*; Pedn-an-drea, 3*s.* to 4*s.*; Penhall, 6*s.* to 7*s.*; North Herdofst, 3*s.* to 4*s.*; North Levant, 6*s.* to 7*s.*; North Penfreston, 18*s.* to 20*s.*; Pedn-an-drea, 3*s.* to 4*s.*; Penhall, 2*s.* to 2*s.*; South Caradon, 10*s.* to 11*s.*; South Condurrow, 10*s.* to 10*s.*; South Crofton, 15*s.* to 15*s.*; South Frances, 12*s.* to 13*s.*; Tincroft, 17*s.* to 18*s.*; South Crofton, 15*s.* to 16*s.*; West Frances, 14*s.* to 14*s.*; West Pevero, 8*s.* to 9*s.*; West Seton, 20*s.* to 21*s.*; West Bassett, 16*s.* to 18*s.*; West Tolgas, 54*s.* to 56*s.*; Wheal Agar, 5*s.* to 6*s.*; Wheal Bassett, 3*s.* to 3*s.*; Wheal Pevero, 3*s.* to 3*s.*; Wheal Conford, 3*s.* to 3*s.*; Wheal Grenville, 9*s.* to 9*s.*; Wheal Jane, 3*s.* to 3*s.*; Wheal Bassett, 3*s.* to 3*s.*; Wheal Pevero, 30*s.* to 31*s.*; Wheal Kitty, 4*s.* to 5*s.*; Wheal Uny, 3*s.* to 3*s.*

Mr. W. BAWDEN, Liskeard (July 15), writes:—The mining market remains dead and devoid of all activity; dealers mostly engaged with the settling. The advance on tin during the week has not created the usual degree of animation as there are much the same, the closing quotations being:—Bedford 1*s.* to 1*s.*; Carn Brea, 7*s.* to 7*s.*; Cook's Kitchen, 7*s.* to 8*s.*; Dolcoath, 53*s.* to 54*s.*; Devon Great Consol, 12*s.* to 12*s.*; East Cornwall, 1*s.* to 1*s.*; East Pool, 35*s.* to 35*s.*; Fresh, 3*s.* to 3*s.*; Marke Valley, 2*s.* to 2*s.*; Phoenix, 4*s.* to 4*s.*; Penhall, 2*s.* to 2*s.*; South Caradon, 10*s.* to 11*s.*; South Condurrow, 10*s.* to 10*s.*; South Crofton, 15*s.* to 15*s.*; South Frances, 12*s.* to 13*s.*; Tincroft, 17*s.* to 18*s.*; South Crofton, 15*s.* to 16*s.*; West Frances, 14*s.* to 14*s.*; West Pevero, 8*s.* to 9*s.*; West Seton, 20*s.* to 21*s.*; West Bassett, 16*s.* to 18*s.*; West Tolgas, 54*s.* to 56*s.*; Wheal Agar, 5*s.* to 6*s.*; Wheal Bassett, 3*s.* to 3*s.*; Wheal Pevero, 3*s.* to 3*s.*; Wheal Conford, 3*s.* to 3*s.*; Wheal Grenville, 9*s.* to 9*s.*; Wheal Jane, 3*s.* to 3*s.*; Wheal Bassett, 3*s.* to 3*s.*; Wheal Pevero, 30*s.* to 31*s.*; Wheal Kitty, 4*s.* to 5*s.*; Wheal Uny, 3*s.* to 3*s.*

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, sharebrokers, Queen's Chambers, Market-street (July 15), write:—The general business transacted during the past week is small, but some few consignments have been repeatedly dealt in. This, however, does not save the week from being classed as a flat one as regards actual business in progress. The quotations, however, show a fair number of changes, and it is worthy of notice that in each class reported upon the majority of variations are small advances, whilst amongst the instances of adverse movement there are very few that are at all severe. The advancing quotations for iron seem to have had a strengthening effect on the market, and in some cases rallies have taken place where quotations have lately increased somewhat sharply. Though the weather during the week has been unsettled—and if it continued so much longer the prospects of a good harvest would be much endangered—it has not yet led to the market of that hope which has been apparent lately, that was likely to look up again shortly.

MANKINS.—These show only a small number of transactions; but where dealings have been had full prices have ruled, and latest prices are the best. Manchester County Bank have been done as high as 40*s.* (15*s.* paid), and Manchester and Liverpool District 35*s.* (10*s.* paid). The alterations are:—Higher: Manchester Liverpool District, 3*s.*; Manchester County, 3*s.*; Union of Manchester, 3*s.*; Lancashire and Yorkshire, 3*s.*; and Bank of Liverpool, 3*s.* The dividends which announced have seemingly borne out expectations, and a firm tone is apparent in these undertakings.

INSURANCE.—Except in Lancashire, which have been done several times at rates ranging from 7*s.* to 7*s.* and Thame and Mersey Marine at between 10*s.* and 12*s.* (2*s.* paid in each case), the business is next to nil; but there are a few alterations, some worthy of notice. United Fire Re-Insurance are 3*s.*; Royal Liver, 3*s.*; Liverpool and London and Globe, 3*s.*; and Positive Life, 5*s.* (but Thame and Mersey Marine are 3*s.* Queen and Maritime each 3*s.*) There is, however, no general feature to record.

IRON, &c., and MINING.—In this class some wide movements have been seen, but the majority of changes is on the side of the "advances." Parkgate, which marked a large fall last week, have rebounded 4*s.* The other variations are:—Tharsis Sulphur, 3*s.*; Bolckow, A (fully-paid), 1*s.*; ditto (paid); Bilbao Iron Ore, 3*s.*; Patent Nut and Bolt, 3*s.*; Telegraph Construction and Maintenance, 3*s.*; Consett Iron Ore, 3*s.*; and Ebbw Vale (in which business has been done at about top figures) 1*s.* On the other hand, John Lewis are 4*s.*; Silkstone and Dodworth Coal, &c., 3*s.*; Sheepbridge Coal and Iron, 3*s.* (had been rather lower still); Cammells, 3*s.*; and United States Rolling Stock, 3*s.* Lower. Rather more disposition to deal in shares of this class seems than was the case a little time since; but as yet there is not sufficient activity to benefit prices much.

TEXTILE SPINNING AND MANUFACTURING shares keep quite dormant, despite profits lately announced. Prices hang heavily, but values are not quotably lower. During the last day or two figures have, if anything, been a trifle higher.

TELEGRAPH.—Western and Brazilian receded during the former portion of the week from 8*s.* as low as 6*s.*, but have since rallied, and have to-day been done 7*s.* With the exception of a solitary transaction in Direct U.S. Cable, no business is reported. The quotations show Western and Brazilian still 3*s.* than last week, but Anglo-American are 3*s.*, Direct 3*s.*, and Eastern 3*s.* Higher.—CORPORATION STOCK, &c., has been neglected.

ANALYSTS.—Analysts are unchanged, and no business reported.—**MISCELLANEOUS.**—No change, and no changes excepting Manchester Carriage A and Rylands and.

SHIPWRECKS.—A moderate amount of business has been done, which has been in Sheffields and their deferred, Caledonians, Brighton A, and Great Britain A. Yesterday Chathams, too, were freely dealt in, at advancing rates. In many cases, however, the last prices are not the best, slight relapses to highest figures touched having taken place. The only instance where a recent price ruling last week is marked is in Great Northern A, these being reacted after advancing. With this exception, the alterations are all for better. Sheffield Deferred, after having been much higher, are now 2*s.* a week since, and Berwick, to which the same remarks apply, 2*s.* Great Westerns are 1*s.*; Brighton A 1*s.*; Metropolitan 1*s.*; Midland 1*s.*; Gloucester, 1*s.*; Birmingham 1*s.*; Liverpool 1*s.*; and North Western 1*s.*; Caledonian 3*s.*; Chatham 3*s.*; and Lancashire and Yorkshire 3*s.* Higher. Great Northern A have changed hands repeatedly to-day, a much lower price than ruled yesterday. To-day's movements are somewhat irregular, but are generally lower than yesterday's figures. American have moved much, either as regards business or quotations. In Canadian, Trunk, First, and Third Preference are 3*s.* each lower; Second Preference very changed, as is also the case with Great Western of Canada.

HULL.—Mr. W. FOWLER SUTTON, stock and share broker, St. Mary's Chambers (July 15), writes:—On the very favourable dividend announcements, easy money and fair traffics, railway stocks have shown considerable buoyancy, though Hull docks and the third reading of the new Railway and Dock Bill. As, however, there can be no active competition for six or seven years, it is highly probable that by the time the port will require all the accommodation it can possibly get. Quotations are:—Hull Banks, 11*s.*; London and York Banks, 2*s.* 9*d.*; Yorkshire Banks, 2*s.*; Hull Docks, 8*s.*; ditto Four per Cent. Debenture stock, 10*s.*; Hull Tram, 9*s.*; Earle's Shipbuilding, 18*s.*; Hull Docks, 10*s.*; Sutton Gas, 1*s.*; British Gas, 3*s.*

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GBANT MACLEAN, sharebroker and ironbroker (July 15), writes:—During the past week markets continued to improve in sympathy with the metal markets and the easy state of the money market; but the highest price of the week has not been maintained, following a relapse in the iron market. Although prices have now left the lowest points lately current, still they are sufficiently low to tempt investors, as with every prospect of a continued revival in trade their prices are only a question of time.

comprise advances of 15*s.* per share on Chillington Iron, 5*s.* on Ebbw Vale, also Lochore and Capeldrae, 4*s.* 6*d.* on Clyde Coal, 4*s.* on Marcella Iron, 3*s.* 6*d.* on Omos and Cleland, 3*s.* on Glasgow Port Washington, and 1*s.* 3*d.* on Monkland ordinary 6*d.* Benhar Colliery shares have been a good deal affected by rumours at one time favourable, when they touched 4*s.*; but latterly by "bears" have been in, and sales have been pressed down to 3*s.*. The pig iron warrant market has again been active, and on a further rise in makers' prices and "bear" closing the price touched 5*s.*; however, until the demand increases, no great revival need be anticipated. Some think buyers are holding back; consequently, when confidence returns the demand may prove larger than is generally expected. Inca Hall and North Branchetree shares still offered, Antrim Iron Ore, A, are at 4*s.* 6*d.*; Bilbao Iron, 21*s.*; Bilson and Crump Meadow, 5*s.*; Bolckow, Vaughan, A, 7*s.* to 7*s.*; ditto, B, 10*s.*; ditto 6*s.* per cent. debentures, 10*s.*; Chapel House Colliery, 25*s.*; Cardiff and Swansea, 35*s.* to 45*s.*; Chillington Iron, 8*s.* to 8*s.*; Clyde Coal, 50*s.* to 52*s.*; Consett Iron, 15*s.*; Chatterley Iron Ore—Chillington Iron, 10*s.* to 12*s.*; Ebbw Vale, 8*s.* Great Western Colliery, 8*s.*; Henry Briggs, A, 11*s.*; John Bagnall and Sons, 25*s.*; John Brown and Co., 15*s.* dis. ex div.; Leeds and Yorkshire Co-operative Coal, 60*s.*; Marcella Iron, 55*s.* to 57*s.*; Mersey Steel, 65*s.* dis.; Monkland Iron and Coal, 4*s.* to 4*s.*; ditto (pref.), 5*s.* to 5*s.*; Muntz's Metal, 52*s.* 6*d.* prem.; Northfield Iron, 10*s.*; North Abercarn Coal, 6*s.* to 7*s.*; Nerbuda Coal and Iron, 5*s.* to 7*s.* 6*d.*; Oakham Colliery (pref.), 5*s.*; Onions and Cleland 26*s.* to 27*s.*; Parkgate Iron, 8*s.* dis.; Scottish Australian, 40*s.* to 45*s.*; ditto, new, 20*s.*; Sheepbridge Iron, 24*s.* dis.; Silkeston and Dodsworth, 35*s.* dis.; Sandwell Park Colliery, 17*s.*; Shotton Iron, 75*s.* to 85*s.*; Thorp's Barber Hall, 28*s.* to 30*s.*; Tredegar, B, 20*s.*; Ulverston, 15*s.* to 30*s.*; West Cumberland, 12*s.* to 13*s.*

In shares of foreign copper and lead companies prices have generally improved. On the week Tharsis (new) have advanced 30*s.* per share; the 10*s.* paid shares 22*s.* 6*d.*; Rio Tinto shares, 7*s.* 6*d.*; Huntington, 2*s.*; and Canadian, 6*s.* dis.; while Yorke Peninsula preference shares are easier. Cape shares are also firm, their returns for May being considered favourable. Alamillo are at 25*s.*; Canadian, 31*s.* 3*d.* to 33*s.* 9*d.*; Copiapo, 8*s.*; English and Australian, 30*s.*; Huntington, 67*s.* to 68*s.*; New Quebec, 80*s.*; Panucillo, 87*s.* 6*d.*; Pierrefitte, 18*s.*; Rio Tinto 5 per cent.; Vizcaya, 93*s.*; Virneberg, 32*s.* 6*d.* to 37*s.* 6*d.*; Yorke Peninsula, 39*s.* 6*d.* to 65*s.* 6*d.*; Rio de Janeiro, 10*s.* to 12*s.* 6*d.*; ditto, 15*s.* to 20*s.* 6*d.* to 25*s.* 6*d.* to 30*s.* 6*d.* to 35*s.* 6*d.* to 40*s.* 6*d.* to 45*s.* 6*d.* to 50*s.* 6*d.* to 55*s.* 6*d.* to 60*s.* 6*d.* to 65*s.* 6*d.* to 70*s.* 6*d.* to 75*s.* 6*d.* to 80*s.* 6*d.* to 85*s.* 6*d.* to 90*s.* 6*d.* to 95*s.* 6*d.* to 100*s.* 6*d.* to 105*s.* 6*d.* to 110*s.* 6*d.* to 115*s.* 6*d.* to 120*s.* 6*d.* to 125*s.* 6*d.* to 130*s.* 6*d.* to 135*s.* 6*d.* to 140*s.* 6*d.* to 145*s.* 6*d.* to 150*s.* 6*d.* to 155*s.* 6*d.* to 160*s.* 6*d.* to 165*s.* 6*d.* to 170*s.* 6*d.* to 175*s.* 6*d.* to 180*s.* 6*d.* to 185*s.* 6*d.* to 190*s.* 6*d.* to 195*s.* 6*d.* to 200*s.* 6*d.* to 205*s.* 6*d.* to 210*s.* 6*d.* to 215*s.* 6*d.* to 220*s.* 6*d.* to 225*s.* 6*d.* to 230*s.* 6*d.* to 235*s.* 6*d.* to 240*s.* 6*d.* to 245*s.* 6*d.* to 250*s.* 6*d.* to 255*s.* 6*d.* to 260*s.* 6*d.* to 265*s.* 6*d.* to 270*s.* 6*d.* to 275*s.* 6*d.* to 280*s.* 6*d.* to 285*s.* 6*d.* to 290*s.* 6*d.* to 295*s.* 6*d.* to 300*s.* 6*d.* to 305*s.* 6*d.* to 310*s.* 6*d.* to 315*s.* 6*d.* to 320*s.* 6*d.* to 325*s.* 6*d.* to 330*s.* 6*d.* to 335*s.* 6*d.* to 340*s.* 6*d.* to 345*s.* 6*d.* to 350*s.* 6*d.* to 355*s.* 6*d.* to 360*s.* 6<i

a condition precedent to obtaining this legal authority is to deposit plans with the Legislature, and give notices to the landowners in the month of November in each year, and then some nine months after the Act of Parliament may be passed. A sum of money equal to 5 per cent. on the engineer's estimate of outlay has also to be deposited with the Accountant-General as caution money for the due fulfilment of the undertaking. This slow process not being suited to the energetic business habits of Mr. Dimbleby who preferred instead of depositing a large sum of money to lie idle for many months to utilise the same in actually making the railway. He has, therefore, set about and acquired the necessary land from the different proprietors, and in three months time expects to have completed the works, and his colliery joined by the new iron roadway to the Great Western System at the Highley station, thereby obtaining an outlet and ready market for any number of tons of mineral his estate may produce. The colliery is under the certified management of Mr. Job Thomson, a gentleman of great practical experience, who has now an opportunity of laying out and working an extensive property worthy of his intelligent and active supervision, and who will be happy to afford information to any of our readers desiring the same. Later on we shall have a great deal more to report as this important and interesting coal field becomes further developed.

IRONWORKS AND MINES IN YORKSHIRE.

THE KIRKSTALL FORGE, NEAR LEEDS.

One of the oldest, largest, and best known iron and steel establishments in the North of England is the Kirkstall Forge, situate about three miles from Leeds, and not far from the picturesque and historical ruins of the Cistercian Monastery, Kirkstall Abbey, and to which we paid a visit a few days since in company with an esteemed and genial cicerone. The works are pleasantly situated, being embedded in the midst of delightful scenery, whilst the River Aire meanders gently along by the side of the works. There is every evidence that hundreds of years ago the inmates of the Abbey were well acquainted with the manufacture of iron, and in one of the windows there is a cast-iron mullion that must have been made centuries ago. The existing works, however, were established by the family of the present owner (Mr. BUTLER) in 1779, and when in full operation find employment for about 1000 hands. The estate consists of about 100 acres, whilst the works cover an area of about 14 acres, and are connected by a siding with the Leeds and Bradford Railway. The works are noted for all descriptions of railway tyres and axles, crank axles, forgings, and bar-iron, as well as for patent rolled shafting, made from the well-known iron, marked "K.M., Kirkstall," or in Bessemer steel. There are large shops for making wheels and axles capable of producing at least 150 sets a week, and steam-hammers up to 50 tons as well as turntables are also turned out. There are three rolling mills and a number of puddling furnaces, principally double, worked by what is known as the JOE PICKLES mechanical rabble, the invention of a foreman formerly employed at the works, and which is considered as a satisfactory compromise between the ordinary furnace and the rotary furnace of DANKS or CROMPTON. There is a tank engine carrying a swing crane worked by steam, capable of lifting 3 tons, so that the load can be taken to any part of the works. Two water-wheels are still on the ground that worked the helves more than 200 years ago. There are several powerful steam-hammers, and a most valuable machine for straightening and planishing round bars for shafting, the importance of which cannot be over-estimated. The bars are passed whilst still hot from the rolls between two revolving discs having bevelled faces, which when brought together so as to compress the bars between them with the amount of force considered necessary rotate them, and at the same time traverse them forwards, also by a mechanical arrangement backwards, so that the whole length of the bar is acted upon by one continuous movement, and the bar comes out straightened and planished.

In carrying out this system two other important results are obtained, one of them being that the scale, instead of being rolled in, as might be supposed, is entirely removed, and the surface made quite smooth. The skin is brought to such a high degree of cleanliness and smoothness that a mere rubbing with emery cloth, or if the bar be put into the lathe with emery stick, polishes it as if it had been turned and polished in the ordinary manner. If the bars, after being allowed to go cold, are passed through the machine several times the blue skin disappears, and the bars come out actually bright. The machine consists of a pair of vertical discs, which rapidly revolve on horizontal shafts; the former, being nearly equal in diameter, are placed face to face, but not with their centres opposite, there being a horizontal distance of about 9 in. between the centre lines of them. When at the right temperature the bar is placed on the table of the machine, which is on a level with the floor, and one end is inserted between the discs, when it immediately begins to revolve and travel longitudinally, and very quickly the whole length of the bar has been operated upon, and entirely and completely planished. The surfaces of the discs which perform the operation are quite smooth, and during the process a plentiful discharge of water descends upon them, and the bar leaves the machine with a smooth skin, perfectly free from scale, with a dark blue polish. Mr. D. KERKALDY made several experiments to test the torsional strength of the bars so acted upon. In order to make proper comparisons, bars, after being rolled in the ordinary way, were cut in halves, one portion being left with the ordinary finish and the other being put through the machine, and it was found that up to the point of elastic stress the machined bars had gained 20 per cent. in torsional strength. As the bars straightened and planished by the machine are 20 per cent. stronger than those left with ordinary finish, it follows that if the comparison be made with turned bars it will be still more favourable to the machined bar; and it is, therefore, important to use them wherever possible without turning, the polishing with emery removing so little of the skin as not appreciably to interfere with the strength. There is also another important point gained by the machine. If there is any unsoundness in a bar which in the usual way could not be discovered the machine is so searching that the bar could not pass through without the defect being detected.

Another of the specialities at Kirkstall in connection with the process described is the making of patent rolled shafting either in iron or steel. The shafting is produced so smooth, round, and true that for all ordinary speeds it can be run safely and satisfactorily without having to go to the trouble and expense of turning any necks, which by removing the skin deprives a shaft of a wearing power at least double that of turned iron, and also weakens it, destroying, especially in the case of necks, in the middle of a shaft its extra torsional strength. It appears, with respect to turned shafting, that in spite of employing the very best mechanics, and the most improved and perfect slide lathes, it is an impossibility to turn two shafts to be exactly and absolutely the same in diameter, and where such has actually been achieved it has been by chance, it being impracticable to turn a shaft 20 ft. long from end to end, theoretically or perfectly round and true. It is, therefore, claimed for the rolled patent shafting that it is sufficiently uniform in size, mechanically round, perfectly straight and true, no turning being required, whilst then 20 per cent. extra torsional strength over ordinary rolled iron in the rough. The shafting is, therefore, well adapted for use in all kinds of agricultural implements, printing machines, power looms, washing-machines, also corve axles, press columns, tie rods, and in all cases where brightness can be dispensed with. The shafting when cold is cut to the required length, the ends being faced and finished at the same time. All sizes are rolled, from $\frac{1}{2}$ in. in diameter increasing by 1-16th up to 2 in., increasing by $\frac{1}{4}$ in. up to $\frac{1}{2}$ in., and then by $\frac{1}{4}$ in. up to 7 in. diameter. Another speciality produced at Kirkstall is BUTLER'S patent frictional coupling, a most important invention, which requires neither keys, key-beds, or swells upon the end of shafts, whilst bolts, which are always fruitful sources of danger, are dispensed with, whether the shaft be too large or too small the coupling is still effective and truly concentric, self-containing, compact, and neat, and can be used as a pulley. One novelty in connection must not be overlooked. It can be put up and taken down in ten minutes by a man of intelligence, as full instructions are stamped upon each piece. We were also shown a hydraulic pressing for for-

ing and stamping malleable iron in the system. HASWELL, of Vienna, two of which we believe are all their own in this country, the second one being at the Cyclops Works, Sheffield, and has been used for bending heavy armour-plates. There are separate workshops where the axles are made, there being the best appliances for economising manual labour. The tyne-mill is by TANNETT and WALKER, the finishing rolls being immediately above the roughing. In another part of the works there are anvil-forging shops and furnaces for case-hardening the axles, with a small iron foundry, where the bushes for axles are made, with a brass foundry for the casting of the caps.

The engines and machinery are in every way excellent, there having evidently been no cost spared in making the Kirkstall Works about the most complete in the kingdom. The offices are of comparatively recent construction, are on a largescale, with every desirable facility for carrying on the necessary works, and for communicating with other parts of the works. As to the products of the works it is not necessary to speak further, for they have the highest reputation in all the markets of the world, and have obtained at most Exhibitions, including London in 1851 and 1862; Moscow, 1872; Victoria, 1873; Leeds, 1888 and 1875; as well as at the meeting of the Royal Agricultural Society of England, and at several others. It may also be said that Kirkstall has been a nursery ground for other districts, for the Staffordshire iron trade in some measure sprang from it, for two lads, twins, went from the forges into Staffordshire, and set up a small establishment, at which they made what was called bullet iron, and this they were successful in introducing into the market for fluted rollers. These lads were the Messrs. THORNEY-CROFT, a family now well known in connection with the iron trade of Staffordshire. Then as to BOCKOW, VAUGHAN, and Co., we are told by Mr. BUTLER, the proprietor, that Mr. VAUGHAN's father turned rolls at Kirkstall Forge, and Mr. VAUGHAN had taught him more of the trade than anyone else. In concluding our notice of a visit to the works at Kirkstall, in which there was so much to interest, we cannot but express our thanks to Mr. BUTLER, jun., who took great pains in showing and explaining to us all that was so well worth seeing.

GOVERNMENT INSPECTION OF MINES.

THE INSPECTORS' REPORTS.

The reports of the Government Inspectors of Mines for 1879, which have just been issued, are the most favourable which have appeared for several years past, there having been $\frac{1}{2}$ per cent. fewer separate accidents—782, against 811; whilst the number of deaths resulting shows a decrease of over 31 per cent.—973, against 1413. The 35 separate explosions caused 184 deaths, or rather more than five deaths on the average to each explosion, which is a far more satisfactory percentage than usual, and the remaining 747 separate accidents caused 789 deaths, which is highly gratifying, since it shows that only one accident in 20 was fatal to more than one person. When it is considered that no less than 476,810 persons were employed, with a loss of but 973 lives, or one life for every 490 men employed, colliers may be congratulated upon the fact that, owing to the excellent management and extraordinary precautions adopted, they are freer from danger whilst at work than nine-tenths of the artizans employed above ground, and that considering the number of lives risked the collieries of Great Britain are absolutely safer than the streets of London. During 1878 there were 475,329 persons employed, and they raised 132,612,063 tons of coal, 1,625,586 tons of fire-clay, 10,747,227 tons of ironstone, and 813,262 tons of shale—together 145,798,138, so that one life was lost for each 103,183 tons of mineral raised, and there was 1 death for every 336 persons employed. During 1879 the 476,810 persons employed raised 133,720,393 tons of coal, 1,455,003 tons of fire-clay, 9,387,766 tons of ironstone, and 803,207 tons of oil-shale, &c.—together 145,366,369 tons, showing 1 life lost for each 149,400 tons of mineral raised, and 1 death for each 490 men employed, as already stated. We subjoin our usual tabulated summary, which will permit of the several classes of accidents being compared:

COAL MINES—1878.

Names of districts.	Separate accidents.				Deaths resulting.			
	Explosions of fire-damp.	Falls of coal, sides, and roof.	In shafts.	Miscel. in mine and at surface.	Explosions of fire-damp.	Falls of coal, sides, and roof.	In shafts.	Miscel. in mine and at surface.
Northumberland, Cumberland, & Durham.	1	31	3	14	49	1	32	4
South Durham & Westmoreland.	3	36	7	32	78	4	37	7
Cleveland, ironstone	3	7	10	17	—	7	10	17
North and East Lancashire.	3	32	4	15	54	45	33	4
Ireland.	2	—	—	2	—	2	—	2
West Lancashire and N. Wales.	5	52	8	37	102	204	54	9
Yorkshire.	4	38	4	30	75	4	39	5
" coal field ironstone.	1	—	—	1	—	1	—	1
" Lincolnshire ironstone	29	7	18	49	—	31	11	13
Derby, Notts, Leicester, Warwick	3	21	9	3	36	28	21	10
" ironstone and fire-clay.	10	2	12	12	—	10	3	13
South Staff., Cheshire, Salop	1	30	7	6	44	1	31	7
" ironstone	1	2	—	3	—	1	2	3
Monmouth, Gloucester, Somerset, and Devon	1	44	4	16	65	268	45	4
" ironstone	5	60	18	28	111	7	62	21
South Wales.	1	32	12	13	58	2	33	17
" ironstone	3	1	1	5	—	3	1	1
East Scotland.	1	32	12	13	58	2	33	17
" ironstone and shale	2	3	1	5	—	3	1	1
West Scotland	4	25	5	10	44	22	25	5
" ironstone and shale	2	2	1	2	5	—	2	1
Total coal mines.	31	439	88	217	775	586	452	104
Total iron, fire-clay, and shale.	—	17	6	13	36	—	17	7
Gross total.	31	456	94	230	811	586	469	111
	27	18	21	8	74	27	19	23
	1413							

COAL MINES—1879.

Name of districts.	As computed by each Inspector for his own district.							
	Males employed.	Tons mineral raised.	No. employed per separate fatal accident.	No. employed per separate fatal accident.	Tons of mineral raised per separate fatal accident.	Tons of mineral raised per life lost.	Tons of mineral raised per life lost.	Tons of mineral raised per life lost.
Northumberland, Cumberland, & Durham.	45,394	12,913,851	926	890	268,810	252,350	252,350	252,350
So. Durham & Westm.	52,906	18,814,076	680	638	241,553	227,000	227,000	227,000
Cheshire, Sussex, &c.	6,791	6,836	399	399	313,392	313,392	313,392	313,392
Derbyshire and Nottingham	29,789	5,318,477	552	301	161,415	151,415	151,415	151,415
North Wales, Isle of Man, &c.	1,322	122,051	611	611	62,930	61,350	61,350	61,350
South Staff., and Worcester.	30,024	11,651,797	382	128	115,388	38,700	38,700	38,700
Ireland.	—	—	19,574	—	—	—	—	—
West Lancashire and N. Wales.	59,777	15,582,283	776	738	207,729	197,000	197,000	197,000
Lincolnshire ironstone	—	226,793	—	—	—	—	—	—
Derby, Leicester, Notts, and Warwickshire	49,354	13,440,184	1007	897	277,047	246,000	246,000	246,000
" ironstone	—	74,926	—	—	—	—	—	—
North Staff., Cheshire, and Shropshire	24,601	5,584,400	512	328	168,434	154,350	154,350	154,350
" ironstone	—	2,091,750	—	—	—	—	—	—
Sth. Stafford & Worcester.	25,103	8,978,000	534	502	198,828	185,000	185,000	185,000
" ironstone	—	191,513	—	—	—	—	—	—
Monmouth, Somerset, part Glam., & Brecon.	30,874	7,152,258	475	93	112,780	22,000	22,000	22,000
" ironstone	—	100,595	—	—	—	—	—	—
South Wales	43,934	12,097,206	398	357	110,428	95,000	95,000	95,000
" ironstone	—	96,189	—	—	—	—	—	—
East Scotland.	40,098	11,667,559						

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	13,167,369	723	716	212,857	209,531	204
Humberland, Cumbria, & N. Durham ironstone	45,862	27	—	—	—	—
Durham Westm., Riding of Yorkshire, and Cleveland ironstone	49,575	17,148,670	918	885	320,895	309,434
—	7,159	6,713	477	477	314,760	324,760
—	—	4,714,535	—	—	—	44
—	30,757	5,993,697	549	459	162,040	135,437
—	1,185	129,003	—	—	—	30
—	39,458	11,783,724	453	407	136,503	122,431
North Wales ironstone	—	22,414	—	—	—	—
—	60,087	16,241,443	780	527	215,957	145,866
—	—	139,856	—	—	—	505
—	134	81,548	—	—	—	10
Leicestershire ironstone	50,923	14,036,642	1107	1083	307,484	300,942
—	—	—	—	—	—	399
Warwickshire ironstone	—	40,127	—	—	—	—
—	23,161	5,562,645	565	483	175,394	149,816
Shropshire ironstone	—	1,572,495	—	—	—	248
Stafford & Worcester ironstone	23,555	9,329,197	406	374	166,203	153,016
—	—	149,204	—	—	—	401
Gloucestershire ironstone	30,060	7,439,627	455	400	114,513	100,771
—	—	40,167	—	—	—	346
Wiltshire ironstone	47,964	12,412,136	393	246	103,461	64,730
—	—	103,478	—	—	—	316
—	40,711	11,300,567	740	473	232,506	148,696
Scotland ironstone	—	706,926	—	—	—	381
—	26,289	6,189,360	626	571	194,529	177,613
—	—	1,750,989	—	—	—	312
—	476,810	133,720,393	610	490	185,890	149,890
—	—	—	—	—	—	3556

The total quantity of ironstone from the different districts was 9,387,766 tons, which, added to 133,720,393 tons of coal, gives the total of 143,108,159 tons. The above tables really embrace all the general statistics contained in the reports, and a large amount of information as to the precise circumstances under which the several accidents happened is given in the reports for each district. As usual, the reports supply many valuable suggestions and observations of a practical character, which will be fully referred to in subsequent Journals.

Meetings of Public Companies.

THE LOVELL TIN MINING COMPANY.

A meeting of the shareholders was held at the office of company, Queen Victoria-street, E.C., on Friday, the 9th inst., Mr. W. BLACKETT in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, also the minutes of the previous meeting, which were passed and signed by the Chairman.

The statement of accounts, which had been printed and circulated amongst the shareholders several days previously, showed a loss on weeks' operations of £393,192,10d. No tin had been sold since February, at such time 9 tons 15 cwt. 0 qr. 16 lbs, sold at 200/- per ton, and 10 tons, 0 qr. 27 lbs, at 52/-, 7s. 6d., making 241/- 5s. 6d. The tin in the bin ready for sale was tons, for which credit was taken at 50/- per ton = 450/-.

In reply to a SHAREHOLDER, Mr. SHARP said that independent of the tin credited in the accounts, and which had been in the bin for some time, there was a quantity on the mine partially dressed, besides an accumulation of tin waiting to be stamped. This would be explained in the report from the agent.—The accounts were passed.

The agent's report was then read:—

July 1.—The following is a report of all operations carried on in the mine for the last 22 weeks:—Since the general meeting, held Jan. 15, the 38 has been driven east of Howman shaft about 10 fms., through a lode varying in width from 7 to 14 ft.; the end at present is being carried 5 ft. wide, the remaining 10 ft. still standing to the south, which can be advantageously worked and sent to surface at small cost when required for the stamps. The lode in the present section is worth 12/- per ton for the part carried (5 ft.). This end is now about 10 fms. east of shaft, and for the last two months I have found the character of the lode to be changing from being bumpy and irregular into a well-defined lode; we have a course of tin ore stuff 1 ft. wide on the one side of the end, which is exceedingly rich, and from the changes recently taken place in the ground I am quite inclined to think that the future operations will not be interrupted by the granite coming in as heretofore, such as marked on the section, and that the operations eastward will now be profitable 4 fms. behind the said end a rise has been put up 3 fms. in a lode 14 ft. wide, of moderate quality; this was suspended during the summer months consequent on not having a sufficient supply of water for stamping. A winze has been sunk in the 38, east of shaft, 2 fms. below the level, for the purpose of testing the lode in depth. At the commencement of the sinking the lode was small and the granite seemed to be coming in on all sides, but a depth of 4 ft. it commenced to open and produce some exceedingly rich tin-stone, and I am pleased to say it is now 8 ft. wide, and opening wider as depth is attained; and although not producing such rich tin-stone as some three weeks since, is yet a good lode, and worth 12/- per fathom. This may be considered an important point, as nothing of any value has ever before been discovered going below the level, and should it continue will open up a new mine.

The lode in Nos. 1 and 2 steps in the back of the 38 is 8 ft. wide, worth 8/- per fathom. These are suspended for the present or during the summer months, as the tin-stone had to be stocked. A cross-cut is being driven north in the 38, east of Howman shaft, for the purpose of intersecting the engine or north lode. This will enable us to see the said lode 40 fms. east of the level driven at the old 38, and if a paying lode is met with the value of the property will be considerably enhanced. We have about 6 ft. more to drive, which I hope will be completed and the lode seen in two weeks from this date. The slope in the back of the 40, east of engine lode, is worth 10/- per fathom; working at 6/-.

At the commencement of the present year the price of tin advanced to 60/- per ton. We increased the number of men below ground to send an extra quantity of shaft to surface, which enabled us to nearly meet cost, but as the dry season set in we suspended nearly all the stonings, and the principal force has since been employed in developing the mine. The tin credited in the account has all been in the bin ready for sale for some time past. We have another parcel getting ready for the burning-house, and we have a great accumulation of tinstuff at surface. No slimes or tailings at the stamps have been treated for the last three months owing to the scarcity of water. The bills are all duly charged to the end of May; June bills, which do not exceed 20/- are not yet to hand. The cost has been reduced from 186/- to 150/- per month, and with the improved price for tin soon as we have sufficient water for stamping I hope to be in a position to meet over that amount by the sales monthly. Number of hands employed are—100 men, 28; spalling and other surface work, 2; landing and filling, 1 man and 1 boy; smith, 1; at stamps 1 man, 5 boys, 2 girls: total, 41.—JOSEPH THOMAS.

Resolved.—That the report and minutes of the meeting be printed and circulated amongst the shareholders.

A call of 4/- per share was made, payable by two instalments of 2s. each respectively, payable on July 30, and August 27, 1880, respectively, subject to a discount of 5 per cent. on each instalment if paid by the respective dates.

In consequence of the improved condition of the mine, and their being defaulting shareholders who could not be found, it was resolved that a special meeting be convened for July 23, 1880, at two o'clock, for the purpose of forfeiting all shares in arrears of calls made previous to the one made this day.

A vote of thanks to the Chairman concluded the business of the meeting.

[For remainder of Meetings see this day's Supplement.]

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, July 12: Produce for the month of June, 28,000 oits.=10,850/-; yield, 64 oits. per ton.—Cuban: 150 tons stamped in fifteen days; yield, 2.7 oits. per ton. All going well.

ALMADA AND TIRITO CONSOLIDATED.—Telegram from Mr. Cleme, dated June 28: I have remitted you bullion, \$2400.

BLUE TENT.—June 9: Telegram from the manager: Partial clean up, \$19,600.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada, Week's run, \$63,000, from 900 tons of ore. Refinery, 850,000. Short blast all the week. Accident to blower; now under repair.

R. Rickard, June 23: During the past week operations have been carried on with usual regularity. The 200 west drift has been extended 13 ft.; ground somewhat more favourable for drifting. The 700 west drift has been extended 43 ft., the ground in this drift is much more favourable for drifting than it has been for some time. The 400 north from No. 11 chamber has been drifted 7 ft. in hard limestone. The 600 west has been extended 11 ft., without any change to mention. The 600 No. 1 cross-cut, west from south fissure drift, has been extended 10 ft.; ground favourable for progress. The 700 drift from winze has been advanced 13 ft. in favourable ground for ore. The 800 west has been extended 10 ft. in hard limestone without any change to mention. The 900 west drift has been advanced 4 ft.; ground very hard. The 900 north cross-cut has been drifted 9 ft. in the same ground. Lizetta tunnel cross-cut has been extended 7 ft. without any change to mention. The chambers are all looking well, and turning out the usual quantity of good ore.

CAPE COPPER.—OOKIEP: Captain Heuwood and Lanksbury, May 31: All the preparatory work having been completed at the new shaft, the sinking will be resumed forthwith to the 105. The 92 fm. level, south-east of new shaft, shows a slight improvement; the present end produces 6 tons of copper ore per fm. At the mouth of this level the side is being cut out in order to sink a winze a ground worth 9 tons of copper ore per fm. No. 35 winze, sinking below the 92 fm. level, has now reached a depth of 8 fms. 2 ft. through good stonings ground, worth on the average 6 tons of copper ore per fm. The present bottom is unproductive. The men in the 80 fm. level, east of the new shaft, are still employed in cutting outside of level to prove the run of the productive ground. In consequence of stopping the side of the 80 fm. level east, towards the new shaft, the driving was suspended for the greater part of the month, but it is now again resumed. The end at present yields 3 tons of copper ore per fm. There is no change to notice in the 65 fm. level, south of No. 31 winze and north towards the same; we hope to effect communication in these levels during the coming months, which will cause good ventilation in this part of the mine. The

58 fm. level, south-west of shaft, has intersected to all appearance the western flookan course, which is very contracted at this point, and the ground to the west is precisely of the same character as that hitherto driven through massive quartz. The ground in bottom of No. 34 winze is spotted with poor ore, but not sufficient in value. Our stonings continue to look well.

Spectakel: The 64, east of winze, has not yet intersected anything of value, and in order to prove the productive ground gone down in the 53 a winze has been started to sink in the bottom of the slope below this level, worth 5 tons of copper ore per fathom. The slope at this point does not show any signs of falling off in production. A cross-cut has been commenced in the 64 in a westerly direction, with the object of proving in depth the veins of copper ore met with in sinking the incline.

Nababeep Mine: The ground in the 17, east of old shaft, having become less congenial for copper ore, and seeing that this trial has, we think, been extended far enough in this direction, cross-cuts have been started north and south at the extremity, to prove the adjacent ground. The stonings in back of the 28 still produces 2 tons of copper ore per fathom.

Returns: For May, Ookiep 1200 tons of 29 per cent.; Spectakel, 120 tons of 3 per cent.—Bills of Lading Received: 470 tons of ore per Alonzo, \$40 tons per Aneroid, and \$10 tons per Antonio Vinet.—Arrivals at Swansea: The Annie Beale,

CONNOOLY.—J. Potter, June 21: Good progress has been made in the mine during the past week, and attended with most satisfactory results, 100 tons of ore broke in the two bottom levels. We commence hoisting on the 23rd, and hope to keep the engine running for the balance of the month. Some ore has been broken in the upper works during the week, and the vein is looking pretty well, but will soon connect with ground already worked out. Good ore is now being taken from east winze, and prospecting work continued on the strike of the mineral. The orebreaks on the 330 ft. level, situated north-west from No. 2 chamber, are looking well, and promises to pay for extracting at improved rates allowed. If the bulk of the ore in sight will bear shipping, we have at least three months' work in sight without further developments. On resuming work on the 430 ft. level an upraise has been commenced on the ledge above the top of No. 3 winze, about 1 ft. of ore is being followed on the footwall. A cave has been encountered to-day, which points out encouraging prospects ahead.

ALAMILLOS.—July 6: The lode in the 115, driving west of Taylor's shaft, is large and strong, and spotted with ore. In the 100, driving in the same direction, the lode contains a little ore, but not enough to value. The 85, driving west of Adriano shaft, consists of a large well-defined lode. The lode in the 80, driving east of San Victor shaft, yields occasional stones of ore. The 70, driving east of San Victor shaft, is opening up good stonings ground, valued at 1½ ton per fathom. The lode in the 70, driving west of San Victor shaft, is large and promising, worth 1 ton per fathom. The men are getting on well with Taylor's shaft, sinking below the 15. In Canton's winze, sinking below the 50, the lode is of no value at present. The sinking of Gregorio winze below the 50 was resumed last month. The usual weekly weighings of ore were kept up during the past month, and the stonings are without any change of importance. The works at surface are kept on regularly, and the machinery is in good working order. We estimate the ratings for July at 175 tons.

BUENA VENTURA.—July 7: In the 40, driving west of Cox's engine-shaft, the men are driving south in search of the lode on the western side of the cross-course. The 40, driving east of Cox's engine-shaft, is still idle, and the men put to assist the timbermen. Cox's engine-shaft, sinking below the 40, is completed to the 50. The men are put to strip down a piece of the north side of the shaft for barrow-road, which will occupy about a week before we commence driving levels east and west of the course of the lode. The setting down of Taylor's engine-shaft sinking below the surface was suspended in January, owing to an increase of water. We have erected a good horse-whim, and resumed working; there are three or four yet to cut down to reach the bottom of the shaft when sinking will be commenced. The surface work is going on with its usual regularity. The engineer has commenced to erect Taylor's shaft on the Emma sett. The tributaries are returning fair quantities of ore, especially on the Atalanta lode.

FORTUNA.—July 6: Canada Incos: The 120, driving west of O'Shea's engine-shaft, is producing ½ ton of lead ore per fathom and passing through a hard bar of ground. The lode in the 50, driving west of Abercrombie's shaft, contains spots of lead, but not enough to value. In the 60, driving in the same direction, the lode has improved within the last few days, and is worth ½ ton per fathom. The 70, driving west of San Pedro's shaft, consists of a well-defined lode, valued at ¼ ton per fathom. The lode in the 80, driving west of San Pedro's shaft, has decreased in size and value. In the 80, driving east of Sab Pedro's shaft, the lode consists of quartz, lime, and lead ore, and worth ¾ ton per fm. The lode in the 70, driving east of San Pedro's shaft, is small at present. In the 120, driving east of O'Shea's engine-shaft, the lode has split into numerous branches which are of no value. The lode in the 100, driving east of Lowndes' engine-shaft, is improving in appearance and opening out good tribute ground; valued at ¼ ton per fathom. In the 90, driving east of Carro's engine-shaft, there is a large and well-defined lode, producing 1 ton of ore per fathom. San Pedro's engine-shaft, sinking below the 80, is down the required depth for a 90 fm. level. The lode in Cristo's winze, sinking below the 30, and valued at ¼ ton per fathom, has fallen off in value of late. Rosa's winze, sinking below the 70, consists of a strong fine-looking lode, worth 1 ton of lead ore per fathom.

Los Salidos: In the 175, driving west of Taylor's engine-shaft, the lode at present is small and poor. The lode in the 160, driving in the same direction, and producing ½ ton of lead ore per fathom, is strong, but rather disordered. In the 175, driving east of Taylor's engine-shaft, there is a compact lode, producing good stones of ore, worth ½ ton per fathom. The lode in the 160, driving east of Taylor's engine-shaft, is large, consisting of quartz and spots of lead ore. In the 145, driving east of Taylor's engine-shaft, the lode maintains its size, but has fallen off in value, being now worth ½ ton per fathom. The lode in the 130, driving east of Taylor's engine-shaft, is congenial and improving, and worth 1 ton per fathom. The 120, driving east of San Pedro's shaft, is opening out splendid ore ground, the lode is yielding some good stones of lead ore, worth ½ ton per fathom. No improvement has yet resulted in the 80, driving west of Palgrave's engine-shaft, Maurique's winze, sinking below the 160, and valued at ½ ton per fathom, maintains its size and value.—San Anton. The lode in the 45, driving east of Henry's engine-shaft, and worth ½ ton per fathom, is regular, but fallen off in value during the past few days. The 30, driving east of Henry's engine-shaft, consists of a large lode, producing 1 ton per fathom; ground easy for driving through. The lode in the 45, driving west of Henry's engine-shaft, is 3 ft. wide and of promising appearance, being worth 1 ton of ore per fathom. In the 30, driving west of Henry's engine-shaft, there is a strong lode, yielding good lumps of ore, valued at ¼ ton per fathom.

LINARES.—July 7: The lode in the 115, driving east of Warne's engine-shaft, is improving, and is producing 1 ton of lead ore per fathom. In the 135, driving west of Peill's engine-shaft, there is a large open lode, yielding good stones of ore; worth ½ ton per fathom. The lode in the 120, driving in the same direction, and of the present year the price of tin advanced to 60/- per ton. We increased the number of men below ground to send an extra quantity of shaft to surface, which enabled us to nearly meet cost, but as the dry season set in we suspended nearly all the stonings, and the principal force has since been employed in developing the mine. The tin credited in the account has all been in the bin ready for sale for some time past. We have another parcel getting ready for the burning-house, and we have a great accumulation of tinstuff at surface. No slimes or tailings at the stamps have been treated for the last three months owing to the scarcity of water. The bills are all duly charged to the end of May; June bills, which do not exceed 20/- are not yet to hand. The cost has been reduced from 186/- to 150/- per month, and with the improved price for tin soon as we have sufficient water for stamping I hope to be in a position to

Mining Correspondence.

BRITISH MINES.

ABERLLYN.—John Roberts, July 14: The ground in the Valley cross-cut does not appear to be quite so stratified as it has been, and there are more facets of lead in the stones; it appears as though it were getting nearer to the lode. The No. 3 cross-cut seems also to be near the lode, as there is more lodestone mixed in the rock. The stopes are producing just the same quantity of blend as they have done for some time past, but for the time being I should recommend suspending them, and when the price may again go up we can put in the men to keep the crusher going. I do not consider that there is any better prospect anywhere than there is between this point and the lake. There is a fine lode of blend mixed with lead in the shaft by the Farm Cottage, and I should recommend driving on the No. 2 end to get under it.

BEDFORD UNITED.—R. Goldsworthy, July 14: Setting Report: Two stopes in the back of the 138 east, by eight men, at 4 ft., worth 8d. per fathom. To drive east at the 127, by four men, at 134 ft., lode worth 10d. per fathom. Two stopes in the back of this level, to ten men, at 44 ft., lode worth 7d. 10s. per fathom. To drive east at the 115, by four men, at 144 ft., lode worth 8d. per fathom. One pitch in the back of the 133, by two men, at 8s. in 11. The pitches in the back of the 115 and the 138 east have not yet been taken. To sink the new shaft on the Bridge lode, by nine men, at 9d. per fathom; this shaft is being carried down for an engine-shaft, and has been thoroughly timbered to the bottom; the lode maintaining its size, 5 ft., composed of strong gossan, with a little capel, much the same character as reported last week—a fine, strong promising lode.

BLUE HILLS.—S. Bennett, R. Harris, July 14: Setting Report: Two stopes in the back of the 138 east, by eight men, at 41 ft., worth 8d. per fathom. To drive east at the 127, by four men, at 134 ft., lode worth 10d. per fathom. Two stopes in the back of this level, to ten men, at 44 ft., lode worth 7d. 10s. per fathom. To drive east at the 115, by four men, at 144 ft., lode worth 8d. per fathom. One pitch in the back of the 133, by two men, at 8s. in 11. The pitches in the back of the 115 and the 138 east have not yet been taken. To sink the new shaft on the Bridge lode, by nine men, at 9d. per fathom; this shaft is being carried down for an engine-shaft, and has been thoroughly timbered to the bottom; the lode maintaining its size, 5 ft., composed of strong gossan, with a little capel, much the same character as reported last week—a fine, strong promising lode.

BODIDRIS.—H. Hotekias, July 14: Meadow Shaft: The engine has been repaired, and the sinking of the shaft is in full swing again, and the ground is a little better for breaking, so that all is going on satisfactorily here. The new shaft sinking on the junction is going down on a very promising lode of average size. In Maes-y-pwll lode east of new shaft, 60 cross-cut driving south, there are favourable indications which lead me to believe we are approaching a lode or joint, as the beds of rock are commencing to dip north very fast. The 17 east of winze I am pleased to say has further improved for lead ore, and is now showing a beautiful course of ore from the roof to within 18 in. of the sole of the level; the same is 8 to 10 in. wide. The stope in the back of this level is turning out very good stuff for the dressing-floors, and our prospects at this level are as bright as at any previous period.

BWLCH UNITED.—N. Bray, July 15: Ritchie's engine-shaft has reached the intended depth below the 100 for opening lode and cross-cutting the lode; and as the water has increased we are preparing a lift of pump to send down to the bottom, to save manual labour in drawing water, and I hope to have the lift and ladder-way fixed and in working order in a few days. The lode in the 100, driving east, is still the full width of the end, but there is no special alteration in its produce since last report. I have removed the men from the bottom of the 60, west of shaft, to make another trial of the lode in the roof of the 40 east, and will report the result in my next. The other stopes in the back of the 70 show no falling off in their yield of about 25 cwt. silver-lead ore per fathom.—Machinery: We have nearly brought all our arrangements to a close, and I hope in next report to name the time for starting the dressing machinery.

CARNARVON COPPER.—J. Roberts, July 14: In the 90 end there is a small leader of copper on the hanging side of the lode. This may lead to the copper in the sump in the bottom of the 80, at Garnon's. The ground is still very hard.

The trial at the bottom of the mountain, on the western ground, is looking better, and very promising for making a bunch of ore. On the side of the mountain there is a great deal of sulphur, and the ground looks very kindly for making copper.

CARON.—John Kitto and Son, July 10: During the past month we have had an ample supply of water to work our machinery, by which all our operations have gone on vigorously, and satisfactory progress has been made at every point. The engine-shaft is 10 fms. below the 22, and the ground is favourable for sinking, hence we hope soon to get it down to the necessary depth for another level, when we shall proceed to open on and test the value of the lode at that depth. The 22, east of engine-shaft, has recently passed through a large and regular cross vein which evidently has affected the lode; and at near the point of intersection it looked very promising, and produced some good stones of lead ore, but as the driving has advanced the lode has become small and disordered, but we hope and believe it will soon resume its proper size and character, at a point a few fathoms in advance of the present forebreast we had at the 10 a kindly and productive lode, which we have every reason to expect to find at this level when sufficiently advanced. There is no change worthy of remark in any other part of the mine.

CLEMENTINA.—J. Roberts, W. Sandoe, July 14: The sump at the 15 is quite as good as we reported it last week, and the rise at the 34 is improved. On the whole the mine is look better than we have seen it for some time.

COMB MARTIN.—T. Harris, T. Comer, July 10: We have to-day set the following bargains:—The 17 to drive on the caunter lode, north-west of Harris's cross-course, by four men, at 5d. 10s. per fathom the month. The lode has been disordered by a cross-head about 6 ft. behind the end, which has thrown it out of its course; but it will soon be back again, as we see it bearing around more westerly. The 17 fm. level to drive south-east, by four men, the month; the lode is large, fully 5 ft. wide. The leader part is principally quartz, spotted with lead and blends for about 2 ft. wide, and is riling the hard part of the lode; this is about 3 ft. thick, carrying a branch of hard steel-like mundic about 6 in. wide, containing spots of lead and patches of blend and white iron. Between these two parts is a nice branch of flannel, showing a good bit of fine lead—a very kindly-looking lode. The winze to sink below adit level, by four men, at 8d. per fathom for 9 ft. extent, which will make it deep enough for the 17. As soon as that is completed we shall commence to open a level to drive south-east to communicate with the 17 north west, and we calculate they are about 7 fms. apart; the lode is small, but showing a little lead. We set the filling and hauling the stuff from the 17 to the adit, to two men and one boy, at 8d. per month, the men to pay their cost.

COMB MARTIN.—T. Comer, July 15: Since our setting report of Saturday last there has been very little change in the different points in the mine. In the 17 north-west end the lode is heaving round in its regular course. We shall uncover a little more of the lode and then cut through it to see what it is like on the west side of the crossing. The men have blasted down a portion of the hard part of the lode in the 17 south-east end-to-end. The two branches of mundic before referred to are united together, and are about 15 in. thick. The lode altogether is showing a little more lead and blend, but not bulk enough to value. We have fixed the air-pipes to the bottom of the winze, which has ventilated it sufficiently for the men to go on with the sinking. The lode continues to look much the same as for the past few weeks.

CWMYSTWITH.—July 14: Since last report the lode in the 15, east of Pugh's cross-cut, has become poor, the lode having taken a more southerly bearing, being heaved in that direction by a cross-joint, which also pinched up the lode; we look at this change as only temporary, as we have again cut a fresh feed of water, which indicates that we shall have the lode again more open in a few feet driving. The lode in the end, driving west, is producing good stones of lead and blend, and improving in appearance. The lode in the end, driving east of the rise, over this level, is 18 in. wide, is not quite so productive, but will yield good saving stuff for lead and blend. No change in Gill's lower level, driving east of the 15, west of shaft, the lode is small, but showing a little lead. We set the filling and hauling the stuff from the 17 to the adit, to two men and one boy, at 8d. per month, the men to pay their cost.

D'ERESBY CONSOLS.—J. Roberts, W. Sandoe, July 14: During the past month we intersected on the Gorse heading, as we have already advised you, on east and west lode, and we put the men last week to drive a little way in it to see what it would do, as it is a lode that has never before been seen. It is about 2 ft. wide, with two good walls, and a small leader of lead on one side—a very kindly lode. On the Red lode the ground is hard, but the lode, notwithstanding, is stronger, more defined, and yielding good stones of blend mixed with lead. At the surface on the Cobbler's lode we have cleared up about 7 fms., which is made quite secure for going deeper. From the appearance of the side walls, where there are patches of solid lead left to stand, it is quite clear that what has been said of the former working is true. There is water now in the bottom, which has prevented us for the time going deeper. We have, therefore, cut the men back in the deep adit to drive a little nearer to it, which will, no doubt, let down more of the water, when we shall be able to clear it up to the bottom. There is a nice rib of lead in the bottom of Owen's old workings, but the ground is hard.

D'ERESBY MOUNTAIN.—J. Roberts, W. Sandoe, July 14: At the No. 5 we are still cutting through the lode towards the footwall near the sump, and find the lode much of the same character as about the top of the sump, chiefly spar and carbonate of lime mixed with good patches of lead. The 15 is being pushed on the hanging side of the lode with all possible speed, and good progress is being made. The air is getting rather bad for working, which necessitates our putting in air-pipes to carry down air. The lode at the No. 2 is looking just as well as possible. All other parts of the mine are going well.

DEVON COPPER AND BLEND.—Wm. Skewls, July 15: Since my last report the lode in the stopes in the back of the adit has greatly improved, producing good quality copper ore as well as high quality blend, and I have every reason to believe that as soon as the water is pumped out we shall have a good mine. The engine-house by to-morrow will be built as high as the loading. Every effort is being made to get all buildings and machinery erected with as little delay as possible. All other parts of the mine are going well.

DEVON GREAT CONSOLS.—Isaac Richards, July 15: Wheat Josiah: New South Lode Shaft: During the past month the 130 west has been driven 1 fm. 2 ft. 6 in., the lode proving 1½ ft. wide, composed of capel, quartz, mundic, and a small quantity of copper ore. The 115 west has been driven 2 ft., the lode proving 1½ ft. wide, composed of capel, quartz, mundic, and a little copper ore. At this point a cross-course was intersected, which displaced the lode probably to the south, and a cross-cut has been put out 2 fms. 0 ft. 9 in. In a southerly direction for proof of same, and the ground being tolerably favourable for progress and congenial for mineral, it is expected that the lode will be met with a fair few feet ahead of the present end.—Wheat Emma: Inclined Shaft: Dawes' cross-cut, south at the 190 east, has been driven 5 ft. 3 in., and the new south lode (intersected four weeks since) has been cut through, proving it to be

8 ft. wide, and presenting a very fine appearance, being composed of capel, quartz, prian, fluor, and copper ore, worth 3 tons, or 9d., and 4 tons of mundic per fathom. The 190, west of Dawes' cross-cut, has been driven 1 fm. 4 ft., and communicated with the 190 east of the new shaft, the lode proving for this length worth 4 tons of copper ore, or 12d., and 3 tons of mundic per fathom. There is some ground to remove at this point to make the communication complete, which will occupy a few days, after which driving will be commenced on the course of the lode in the eastern direction, where we hope to lay open some valuable ground. The 137 east, east of Friend's cross-cut, has been driven 4 fms. 1 ft., the lode proving from 2½ ft. to 3½ ft. wide, composed of capel, quartz, peach, mundic, and some good quality copper ore. It is now improved, and worth 1 ton of copper ore, or 3d., and 3 tons of mundic per fathom. New Shaft, New South Lode: The 205 west has been driven north 1 fm. 3 ft. 2 in., and the lode has been cut through, proving of great width—from 9 to 10 ft. wide—composed of capel, quartz, peach, prian, and a little copper ore, or 10d., and 5 tons of mundic per fathom. The 205 east has been driven 1 fm. 7 in., on a portion of the lode, 5 ft. wide—where it is worth 5 tons of mundic per fathom. Hoekaday's lode, in the bottom of the 190 west, has been sunk 1 fm. 0 ft. 2 in., the lode proving from 4 to 5 ft. wide, composed of capel, quartz, peach, mundic, and a little copper ore. The 190 west has been driven 2 fms. 5 ft. 8 in. by the side of the lode, and is being continued by the side thereof for more speedy progress. The 115 east has been driven 2 fms. 5 ft. 5 in., the lode proving from 3 to 4 ft. wide, composed of capel, quartz, prian, mundic, and some copper ore of good quality. The 100 west has been driven 1 fm. 2 ft. 5 in. in the lode proving 2 ft. wide, composed of capel, quartz, peach, and small quantities of mundic and copper ore.—Railway Shaft: The 190 east has been driven 2 fms. 5 ft., the lode proving from 3 to 5 ft. wide, composed of capel, quartz, peach, and worth 2 to 3 tons of copper ore, and 4 tons of mundic per fathom. The 190 west has been driven 1 fm. 2 ft. 7 in., the lode proving from 2 to 3 ft. wide, and worth 1 ton of copper ore, or 3d., and 2 tons of mundic per fathom. Floyd's cross-cut, south at the 175 west has been driven 2 fms. 1 ft. 10 in., the ground proving tolerably good for progress and congenial for mineral. Champion's cross-cut, south at the 160 west has been driven 1 fm. 4 ft., and another portion of the lode has been met with, and so far as cut into 4½ ft. It presents a good appearance, being composed of capel, quartz, peach, and copper ore, worth 2 tons, or 6d., and 2 tons of mundic per fathom. Fox's winze in the bottom of the 160 east has been sunk 1 fm. 3 ft. 3 in., and communicated with Marshall's rise in the back of the 175, the lode proving at a point of communication worth 4 tons of copper ore and 3 tons of mundic per fathom.—Watson's: All the necessary repairs to the engine-shaft have been completed, and the hauling-machine has been put in order, pulley-stands, poppet-heads, &c., erected, and wire-rope attached, and the whole, with the pumping machinery, works remarkably well. The engine-shaft has been sunk 1 fm. 6 in., making a total depth below the 64 of 11 fms. The lode having taken a greater underlay than the course of the shaft, 1½ ft. only of it has been cut into, which consists of capel, quartz, peach, fluor, mundic, and a little copper ore. Sinking will be continued for another 3 fms. on the north side, which will be a sufficient depth for another level, where a plat will be cut and the lode opened upon by cross-cut, and by driving on its course.

DUBBY SYKE.—William Vipond, July 10: The joinder has got the wheel together except the sole planking and the buckets, which have to be put in yet.

The men are still cutting up to the side of the shaft to take some of the luff of the pumps and make a way for the wire rope. I had three men yesterday trying to lift the pump out of the Nether Hearth shaft. They got them lifted so far up the shaft, and will continue on at the job to-day. We shall have the pumps brought on as soon as they get them out.

EAST CRAVEN MOOR.—D. Williams, July 13: All is going on well at this mine. Good progress is being made in sinking below the 65. Besides the produce in mid-level of 102 tons of lead ore, which is ready for sale, we shall have another 40 tons dressed, and in course of smelting next Saturday.

EAST ROMAN GRAVELS.—A. Waters, July 15: The engine-shaft is about 7 fathoms below the 97; ground of the usual sand and hardness. There is no change in the 97 south for the last week or two. The 66 south is in a lode worth about 2 tons per fathom. We have started to rise in this level against the winze coming from the 75, and hope to hole the two points in a week from this date. The said winze is now 9½ fathoms below the 75; the lode in the present bottom is worth 3 tons per fathom. The pitches are yielding their usual quantities of lead ore. Our usual sampling takes place next week.

EAST VAN.—W. H. Williams, July 14: I am pleased to be able to report this week a decided improvement in the trial cross-cut. We have now a very pretty ledge composed of clay-slate, spar, carbonate of lime, and gossan, and showing occasionally spots of lead ore. During the last day or two we have cut large pieces of mundic, which I look upon as a favourable indication. The cross-cut is driven 15½ fms., and I intend continuing the driving until thoroughly intersected.

EAST WHEAL BULLER.—W. Tregay, July 14: The cross-cut is being pushed on with all speed, and will speedily intersect three of the most important ledges of this district, one of which must be very near the present point of operation.

EAST WHEAL CREBOR.—George Howe, July 14: The mine is in fork to the bottom—70 fathoms below the surface. The 70 fm. levels are driven some short distance, principally full of stuff, as also the 60 fm. levels and the 50 fm. levels, all of which we are forcing with all possible dispatch to clear and secure before commencing to work on the ore ground at the different levels laid open throughout the mine, which we hope to accomplish in a short time.

FORTESCUE (Stannagwyn).—J. H. James, H. Harris, July 14: We are progressing fast with the dressing-floors and calciner, and shall soon be ready to start the engine and stamps. We are sinking shaft for fork now. The stopes continue to yield the usual quality of ore as previously reported, of which many hundred tons are broken ready for the stamps. From assay by W. White, M.P.S., the yield of the 200 ft. from the bottom of the shaft is 448 lbs. per ton of ore-stuff.

FRONGOCHE.—J. Kitto and Son, July 10: Since the date of our last report we have driven the 154 fm. level cross-cut quite through the lode, which has satisfactorily proved its full width and value at this point. In consequence of the lode being wider than we anticipated, we have been longer engaged in crossing it than we expected; but seeing the deposits of lead ore have frequently been found on both sides, and more or less through the whole breadth of the vein, it was very necessary to test its entire width as we have done. We find the lode fully 60 ft. wide, and in its general character very similar to what it has been when most productive in other parts of the mine; in fact, we have rarely, if ever, seen a finer looking lode, or one more promising for yielding large quantities of lead ore than we have at this, the deepest point in the mine. Hence we are opening on it in length as fast as possible, and we are pleased to be able to state that in driving eastward we find the lode increasing in value; at present it yields lead and blend ore for the dressing floors, and without doubt, as the driving proceeds in this direction towards the run of ore ground, will be even more productive. The 142, east of Vaughan's shaft, is not as productive as when last reported, the present forebreast being worth 10 cwt. of lead ore per fathom. We have recently stopped the 17 fm. level to drive south-east to communicate with the 17 north west, and we calculate they are about 7 fms. apart; the lode is small, but showing a little lead. We set the filling and hauling the stuff from the 17 to the adit, to two men and one boy, at 8d. per month, the men to pay their cost.

GRIFFITH'S.—T. Harris, T. Comer, July 10: We have to-day set the following bargains:—The 17 to drive on the caunter lode, north-west of Harris's cross-course, by four men, at 5d. 10s. per fathom the month. The lode has been disordered by a cross-head about 6 ft. behind the end, which has thrown it out of its course; but it will soon be back again, as we see it bearing around more westerly. The 17 fm. level to drive south-east, by four men, the month; the lode is large, fully 5 ft. wide. The leader part is principally quartz, spotted with lead and blends for about 2 ft. wide, and is riling the hard part of the lode; this is about 3 ft. thick, carrying a branch of hard steel-like mundic about 6 in. wide, containing spots of lead and patches of blend and white iron. Between these two parts is a nice branch of flannel, showing a good bit of fine lead—a very kindly-looking lode. The winze to sink below adit level, by four men, at 8d. per fathom for 9 ft. extent, which will make it deep enough for the 17. As soon as that is completed we shall commence to open a level to drive south-east to communicate with the 17 north west, and we calculate they are about 7 fms. apart; the lode is small, but showing a little lead. We set the filling and hauling the stuff from the 17 to the adit, to two men and one boy, at 8d. per month, the men to pay their cost.

GRIFFITH'S.—T. Harris, T. Comer, July 15: Since our setting report of Saturday last there has been very little change in the different points in the mine. In the 17 north-west end the lode is heaving round in its regular course. We shall uncover a little more of the lode and then cut through it to see what it is like on the west side of the crossing. The men have blasted down a portion of the hard part of the lode in the 17 south-east end-to-end. The two branches of mundic before referred to are united together, and are about 15 in. thick. The lode altogether is showing a little more lead and blend, but not bulk enough to value. We have fixed the air-pipes to the bottom of the winze, which has ventilated it sufficiently for the men to go on with the sinking. The lode continues to look much the same as for the past few weeks.

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very flat, and 1/4 down, but now only show a fall of 3%. Berwick, 163% to 164%; Great Eastern, 61% to 61%; Eries, 43% to 43%; Trunk, ordinary, 20 to 20 1/2; Devon Consols, 12 1/2 to 13; Wheal Crebor, 5% to 5%—*Four o'Clock*.—The markets close fairly steady, especially for foreign stocks, which are firm at Paris. Sheffield, A, 63% to 63%; York, A, 122 to 122 1/2; Dover, A, 135% to 135%. Erie shares are up to 83 1/2 to 84. Newport Abercarn Colliery, 6 1/2 to 7; Cardiff and Swansea, 2 to 2 1/2; Great Western Colliery, B, 3% to 3%.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JULY 16, 1880.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, G.M.B., f.o.b., Clyde, 2 11 6-2 11 7 1/2	90 0 0	91 0 0	English, ingot, f.o.b... 90 0 0	91 0 0	91 0 0
" Scotch, all No. 1 ... 2 14 6-	90 0 0	91 0 0	" bars ... 91 0 0	92 0 0	93 0 0
Bars, Welsh, f.o.b. Wales 5 7 6-5 10 0	90 0 0	91 0 0	" refined ... 92 0 0	93 0 0	94 0 0
" in London, 5 15 0-5 18 0	90 0 0	91 0 0	Australian 87 10 0-9 0 0	90 0 0	91 0 0
" Stafford, 7 5 0-7 10 0	90 0 0	91 0 0	Banca 88 0 0-9 0 0	90 0 0	91 0 0
" in Tyne or Tees ... 5 10 0-5 15 0	90 0 0	91 0 0	Straits 87 10 0-9 0 0	90 0 0	91 0 0
" Swedish, London 9 0 0-10 10 0	90 0 0	91 0 0			
Bars, Welsh, at works ... 5 10 0-5 15 0	90 0 0	91 0 0			
Sheets, Staff., in London 8 0 0-9 0 0	90 0 0	91 0 0			
Plates, ship, in London 7 10 0-8 0 0	90 0 0	91 0 0			
Hoops, Staff., 7 15 0-8 5 0	90 0 0	91 0 0			
Nail rods, Staff., in London 7 0 0-8 5 0	90 0 0	91 0 0			
STEEL.					
English, spring 13 0 0-19 0 0	90 0 0	91 0 0			
" cast 30 0 0-40 0 0	90 0 0	91 0 0			
Swedish, keg 15 0 0-18 0 0	90 0 0	91 0 0			
" fag. ham. 15 10 0-18 0 0	90 0 0	91 0 0			
PHOSPHOR BRONZE.					
Alloys I., II., III., and IV. £120 0 0	90 0 0	91 0 0			
" " VI. and VII. 135 0 0	90 0 0	91 0 0			
" XI. Sp. bearing metal 112 0 0	90 0 0	91 0 0			
BRASS.					
Wire 6 1/2d. —	90 0 0	91 0 0			
Tubes 9 1/2d. —	90 0 0	91 0 0			
Sheets 8 1/2d. —	90 0 0	91 0 0			
Yel. met. sheath. & sheets 6 -6 1/2d. —	90 0 0	91 0 0			
TIN-PLATES.* per box.					
Charcoal, 1st quality ... 1 2 0 0-1 4 0 0	90 0 0	91 0 0			
Metal, per cwt. 15 0 0-16 0 0	90 0 0	91 0 0			
Ore, 10 per cent. per ton. 20 0 0-25 0 0	90 0 0	91 0 0			
QUICKSILVER.					
Flasks, 75lbs., war.(nom) 7 0 0-7 2 6	90 0 0	91 0 0			
Silesian 18 5-18 10 0	90 0 0	91 0 0			
English, Swanses 19 0 3-23 13 0	90 0 0	91 0 0			
Sheet zinc 14 10 14 10	90 0 0	91 0 0			

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 1C quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—Our markets opened strong this week, and owing to considerable speculation, combined with a moderate shipping and consumptive demand, higher prices for almost all metals were realized. The rapid movements which have been effected in prices show that the demand is far more speculative than caused through increased legitimate orders; and further than this, the manner in which one market follows another, even where there is no degree of relation one with the other is an evidence that for no particular cause except speculation has the advance been brought about. For instance, when Scotch pigs at the commencement of the week were realizing higher prices, advanced rates were also being obtained for other metals; but when on Wednesday Scotch pigs gave way in price, a general reaction set in, and lower prices all round were accepted. The position of the iron market has, of course, always an ultimate bearing upon other markets, and although it produces a very material influence upon the demand for other metals, yet slight fluctuations in the price of iron, in an ordinary way, ought not to cause any immediate effect upon other metals, except in cases such as the present, when prices for all metals are influenced by the prevailing speculation, and follow in sympathy those for iron. There still appears to be a feeling of confidence that the *bona fide* demand will be sufficiently augmented hereafter to justify any reasonable advance which may take place at the present time, although during the last day or two it has been less pronounced, and upon this hopefulness are reports spread of trade revival, and the more they are circulated, the more brilliant are the prospects of the moment. The more regarded than they were formerly, and buyers of some metals appear plentiful at the advanced rates. There has, however, since Wednesday, been rather more disposition to take profits, and all the markets have suffered more or less from this cause; but whether prices will recede any further it is at the moment impossible to say. The material interest which so many operators have in the advancement of prices, will doubtless cause an effort to be made to prevent the prolonging of the downward tendency; but as the supplies and stocks of some metals are very heavy, and owing to America at the present time being fully supplied, and also on account of large purchases which have been lately made for India, it will need strong support to render the movement successful.

COPPER.—This market opened firm at the commencement of the week, and sales were effected at advancing rates, and prices had every appearance of continuing to rise; but on Wednesday a reaction set in, and lower prices had to be accepted; and yesterday the market lost more than it had gained on Monday and Tuesday. Buyers of Chili bars at the close declining to pay more than 59. 15. Speculation was undoubtedly the chief cause of the rise, and therefore the change in the tone of the market is not surprising, and still further reduced rates do not seem improbable, for producers continue to send forward supplies heavily. The Chili charters announced last Monday were 2100 tons, which is a full charter, considering it was for only ten days instead of 14 as usual; and by this it appears that producers have no intention of curtailing their supplies, but are sending them forward fully in the hope of benefiting themselves by the rise which occurred. There has been a good inquiry this week for copper and yellow metal sheets for India, and importers have advanced their limits, consequently a very fair business for shipment has been transacted; and it is to be hoped that the plentiful crops reported in that country will stimulate trade that the demand from there may develop more and more as the season advances, as the most unfavourable statistical position of this metal requires an extra demand to act as a check to an increase in stocks. At the Public Tickling, held at Swansea last Tuesday, 2043 tons copper ore, of an average of 8 per cent. produce, were sold at an average of 10s. 11d. per unit. The deliveries of early produce for the first fortnight of this month were 1017 tons, against 710 tons for the corresponding period of 1879. The imports for the same period were 470 tons, against 1299 tons, and the stock in first and second hands in Liverpool and Swansea on the 15th inst. was 32,933 tons against 35,500 tons on the 30th ult. The stock in Havre remains the same as a fortnight ago, but is rather less than at the corresponding period of 1879. The stock of foreign copper in London also remains unaltered, and is estimated at 520 tons less than on the 15th of July last year. The imports for the first six months of the present year have

been 52,025 tons, against 49,923 tons for the same time in 1879, and 40,261 tons in 1878; whereas the exports for similar periods were 30,562 tons, 31,215 tons, and 30,007 tons respectively.

IRON.—Considerable vitality has at times been displayed in pig iron, and higher prices have been realized. There is, however, no material improvement in the demand for manufactured shipping orders continuing limited, but on the whole are reported slightly better than they were a month or two back. An improved inquiry has also sprung up for Swedish iron, but although buyers have somewhat increased their limit, they have not for the most part come up to sellers ideas, consequently the business transacted has not been very large. There is one matter of a detrimental character which the advanced rate of pigs has brought about—viz., a further increase in production. The rise in pigs has undoubtedly been caused chiefly by speculation, and this is clearly proved by statistics which show the Glasgow public stock to have further increased last week, the total visible stock in that district on the 10th inst. being 448,980 tons. If the demand was a consumptive demand then stocks would doubtless diminish, but when it is seen that stocks are on the increase, and an active demand prevails, it is evident that the demand must be speculative. On repeated occasions have we pointed out the absolute necessity of reducing production, at all events for the present, for owing to the vast accumulation of stock which is caused thereby, no permanent improvement in prices can be established. It is therefore a matter of regret that even one more furnace should be put in blast, as there are already in Scotland more furnaces in blast than are necessary to meet the present legitimate requirements of the trade. The weekly return of the foreign and coastwise shipments this year have invariably shown an increase upon the corresponding periods of 1879, to which operators have repeatedly referred as an indication of the increased business which is being transacted, but now that the autumnal season is approaching, at which time last year the activity commenced, the returns are not likely to continue to compare so favourably, especially as American orders have so materially fallen off. Last week, however, they were nearly double to what they were during the same week in 1879, the quantity being 10,158 tons, against 5619 tons, and the total from Christmas to date this year have been 584,439 tons, against 266,055 tons in 1879. The imports of Middlesbrough iron into Grangemouth last week were 5145 tons, and 3800 tons for the week ending the 12th of July, 1880. A good business was reported in warrants on Monday from 52s. to 53s. 7d., and on Tuesday at prices fluctuating between 54s. and 55s. 3d. cash. On Wednesday the market declined to 51s. 10d., but rallied to 52s. 1d., but yesterday down to 50s. 9d. was accepted, but closed firmer at 51s. 6d. To-day being a Glasgow holiday there is no market for pigs. The Middlebrough market has displayed more vitality, and the higher rates and improved feeling on the Glasgow market at the commencement of the week favourably influenced this market, and middlemen are said to have entered into numerous and extensive engagements, consumers also purchasing more freely. Business is reported in No. 3 at 42s., and in a few instances 41s. 6d. has been accepted; forge iron realizing 1s. per ton less. Makers, however, are still quoting considerably above these rates, and are asking 41s. or 42s. for No. 3. Public stocks continue to increase, there being an increase of 650 tons in Connell's store for the week. The shipments of pigs last week were about 17,200 tons or a decrease of 7000 tons upon the previous week; the chief of which were sent to Scotland and the German, Dutch and Belgian ports. The quantity of manufactured iron, including steel, exported from Middlesbrough last week, was 6826 tons, and owing to the advance in value of the raw material, manufacturers have also slightly raised their prices. There appears to be a good demand for rails, and fair inquiries are at times made for other descriptions of manufactured iron. Sheet plates are quoted at £6 10s. and bars, angles at 5s. 6d. From Wolverhampton prices are reported firm, but the demand inactive, and as buyers for the most part decline to pay the present rates, the business actually transacted has continued of a somewhat limited character, although the demand for pigs does not respond to the advance which has already taken place, still Hematites are expected to be quoted higher in the course of a few days. During the week the mills have been in more active operation at Birmingham, and manufacturers are said to hold a larger number of orders than for some time past, this being especially the case of houses who turn out marked bars. Quotations have consequently been steadily maintained, while unmarked iron has slightly advanced in value, merchant bars realizing from 5s. to 7s. 6d. per ton more than a fortnight ago. Nails Rods are in better demand for both consumption and export while other descriptions of manufactured iron are in an improved request for Transatlantic markets. Pigs have sold freely, the demand being chiefly for local produce. Recent advice from New York show that there is an improved demand for Scotch pigs, and prices are now tending upwards. Gartsherrig is quoted at 22s. 6d. Glengarrach at 21s. 6d. to 22s. 6d. Colness, 23s. 6d. Eglington at 20 to 21s. There is said to be a good demand for scrap iron and old rails, but prices are rather irregular, the latter selling chiefly at 25s. d.

TIN.—A further improvement took place in prices last Monday, and foreign was quoted up to 87l. to 88l.; and on Tuesday the market continued very firm, and spot parcels were quoted at 88l. and forward at 88l. 10s. to 89l. On Wednesday, however, symptoms of ease were manifest, 87l. being again accepted; and yesterday the market remained steady at about 87l. to 88l., according to prompt, and to-day there has been very little change, business being recorded at 87l. 10s. Considering the rise has been so quickly effected, the reaction does not appear surprising, for many recent buyers endeavour to realize, which more or less depresses the market; but at present there does not appear to be any cause to expect otherwise than that the market will soon right itself again, for statistics are still satisfactory, and the reaction proves beneficial to the *bona fide* buyer, who has a more favourable opportunity of effecting purchases than he otherwise would have.

LEAD.—This market remains steady, sellers for the most part being very firm in their quotations; and at the close slightly better prices for pigs are being realized than at the commencement of the week.

SPELTER.—There is no change to be reported in the state of this market, business being carried through at former rates.

TIN-PLATES.—Prices are steady, and recent advices from New York show that the demand out there has slightly improved.

QUICKSILVER.—The week opened with some excitement consequent upon rumours of a fire at a Californian mine, and large sales were made from 6l. 15s. up to 7l. 5s. chiefly from secondhands, but the damage does not appear to have been of importance, inasmuch as the price at San Francisco has not risen proportionately with the advance here. At the close secondhand parcels offer at 7l.

Messrs. HARRINGTON, HORAN, and Co. (Liverpool, July 15).—Chili copper charters for the second half of June were 1700 tons fine, and for the first half of this month 2100 tons fine. During the past fortnight considerable business has been done in bar copper at 59s. 10s. to 62s. per ton. Prices are now on the wane, and to-day's quotations are 60s. to 61s. per ton according to the brand and prompt. In furnace material the sales comprise 770 tons Bolivian ore at 12s. per unit, 200 tons Portuguese precipitate at 11s. 9d., 525 tons Spanish, and 100 tons English precipitate at 12s. to 12s. 8d. per unit, and at the Swanses, 10s. by tender. Charcoal, 1st quality ... 1 2 0 0-1 4 0 0

" 2nd quality ... 0 13 0-0 1 0 0

Coke, 1st quality 0 17 0-0 18 0

" 2nd quality 0 15 0-0 16 0

Black per ton 15 10 0-15 15 0

Canada, Staff., or Gla. 12 0 0-12 10 0

Black Taggers, 450 of 30 0 0-30 0 0

Sheet zinc 14 10 14 10

Total 730 2065 31,848 30 —

Representing about 32,953 tons fine copper, against 33,500 tons 30th ult.; 30,365 tons July 15, 1879; 21,749 tons July 15, 1872; 15,692 tons July 14, 1877. Stock of copper contained in other foreign ore and Spanish precipitate, 3468 tons fine. Stock of Chili copper in Havre, 4485 tons fine, against 4734 tons July 15, 1879. Stock of Coro Coro barilla in Havre 73 tons fine, against 378 tons July 15, 1879. Stock of Chili copper afloat and chartered for to date, 16,500 tons fine, against 16,500 tons July 15, 1879. Stock of foreign copper in

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bers of all shares which have been transferred; the amount of money expended at the mines, the average number of miners employed daily in the company's operations, the number of cubic metres of ground covered, the quantity and value of the ore obtained, and the present value of the machinery and plant belonging to the company. The French accountant appointed will also be assisted by an Englishman of the same profession, in order that the investigation may be thorough and conclusive. It is said that if it be shown that a fair proportion of the capital raised has been expended in the mines, and that the management has been economic, the unsubscribed capital, if any, or additional capital if necessary, will be at once forthcoming. As far as is known, the general meeting of shareholders was held on May 1, it is regrettable that these matters were not then discussed, as probably the objects could have been achieved at much less cost.

Richmond, 15½ to 15¾; the usual telegram from the mines at Eureka, Nevada, states that the week's run was \$63,000, from 990 tons of ore. During the week the refinery produced doré bars to the value of \$50,000. They have been short of blast all the week through an accident to the blower, which is now under repair. The manager (June 23) reports upon the various points of operations, which had been going on as usual during the week. The chambers are all looking well, and turning out the usual quantity of good ore. Ruby and Dunderberg, 7½ to 7¾; the profit (not the returns as previously stated last week) for June was \$12,000. The returns graphed are stated to be very good, but were interrupted by the three days' holiday for the celebration of independence. The latest reports from the mines are favourable. The cross-cuts at the 500 ft. levels, towards the known lode of the Home Ticket, are being plotted with all possible dispatch and in favourable ground. In the mineral channel of ground discoveries have been and are being made at every station of driving.

The Flagstaff (old) Company have issued a circular embodying the minutes of meeting reported in last week's *Mining Journal*. The circular states that "the directors have received from various share and debenture holders, who are aware of the great necessity for prompt decision, personal and distinct expressions of approval of the scheme, and it is regarded as highly necessary that an opportunity should be extended to all share and debenture holders of expressing their concurrence. A form for the purpose is accordingly sent herewith, and it is distinctly requested that you will be good enough to return and sign immediately. Messrs. Bacon, Urwick, Fox, Greenup, and Good were elected a committee, and have already entered upon their investigations. As soon as they are in a position to report another meeting of the share and debenture holders will be convened." A correspondent, whose letter appears in another column, comments that the New Flagstaff vendors will take 35,000 ft. in shares and 400 ft. in debentures instead of the converse, the comparison is too favourable to the New Flagstaff unless he has really ascertained that the terms he mentions would be acceptable to the public. With the exception mentioned his figures appear to be unusual.

Missouri, 10 to 11; advices received this week, dated June 28, report that "the lode in the 245 ft. level north has just come in longer than we have ever had it before. The men are now taking down some stones of pure galena, from 300 to 1000 lbs. in weight. We have also just cut some very heavy mineral in the winze which are sinking in the 245 level south. We have engaged our smelters, and will start our furnaces this week and run them steadily; work all going on regularly throughout the mines."

Hydraulic or Gold-Washing Companies shares have been almost entirely neglected. Blue Tent, 2 to 2½; the result of the work for June is cabled as "partial clean-up \$19,600"—a very satisfactory return. Birdseye Creek, ½ to 1; a telegram received since our last announces the result of washing for June \$4500 gross, \$500 profit. The operations have been entirely on new gravel, to extend the flumes to the channel, the return is quite equal to expectations.

In Lead Mine shares there has been but a limited business doing, yet prices are strictly demanded upon attempting to buy, although it is not always easy for an intending seller to be equally exacting. Gwerny-Mynydd, 2½ to 3½; the accounts for the half-year ending June 30 have been issued, and the meeting is to be held on Wednesday. The dividend will be at the rate of 1s. 6d. per share. During the half-year 600 tons of lead have been sold, at an average price of 11s. 1s. 9d. Mongoch, 2 to 3; a parcel of 100 tons of blonde will be sold on Tuesday. The monthly report is, on the whole, satisfactory, and good progress appears to be making at all points.

North D'Eresby Mountain.—The winze sinking under No. 2 level, which had fallen off in value last week, is now as good as ever; the lead is found to be dipping north; so that the No. 1 level driving south will reach this run of lead ore much sooner than was expected. The Italian miners and overseer have arrived.

West Pateley (Lead).—The agent writes that the 56 fm. level west, which has gone through a course of ore for nearly 60 fms, in length, and which at one point yielded as much as 10 tons of lead ore per fathom, is now looking better than for some time past. Other points without much change. Machinery is in good order, and all going on well.

Tan-Yr-Allt (Cardiganshire).—The discovery in the 12 fm. level continues to improve, and there is now about 4 fms. of the level in a course of ore worth on an average 2 tons per fathom; but the fore-breast is worth 50 cwt. per fathom. Crushing and dressing have been carried on vigorously for the past week, and there is about 7 tons of clean ore ready for sampling 10 tons next week.

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Temple Mine.—On Thursday the members of the Severn Valley Naturalists Society paid a visit to this mine and, under the guidance of Capt. Davies and Mr. Croucher, the local managers, inspected the surface plant, and were shown the process of dressing the ore slime, &c.; unfortunately they were prevented from seeing the air-compressor and rock-drills at work in consequence of the repairs to the driving gear being incomplete, which was a great disappointment. But they expressed themselves well pleased with the quantity and quality of ore and the judicious arrangement of the machinery by which it was dressed and the orderly manner in which the different operations were conducted.

Mynydd Gorddu.—Reports from this mine continue very satisfactory, and the mine has every indication that it will become even richer in depth. A winze is now being sunk from the 24 fm. level on a course of ore worth fully 4 tons of lead ore per fm., and as the Mynydd Gorddu ore contains about 22 oz. of silver to the ton this must obviously yield very good profits, even at the present price of lead.

Great Laxey Mining Company.—The directors, at their meeting on Wednesday, declared a quarterly dividend of 8s. per share (free of income tax), payable on July 28.

New Llanfair.—We are informed that the application for shares in this company are very numerous; this may be looked upon as another evidence that more care and discrimination is exercised by the investing public than formerly, when so much loss was sustained by people, without proper enquiry, rushing into speculations devoid of all elements essential to success. The main lode in New Llanfair is marked on the Government Ordnance map, and the speculative points are, therefore, eliminated, and with economical and effective development nothing should prevent this mine being one of the prizes of the present year.

Terrible Colliery Explosion in South Wales.

A colliery explosion, which has resulted in the loss of 119 lives, occurred on Thursday at Risca, about six miles from Newport. The colliery at which the disaster occurred belongs to the London and South Wales Colliery Company, which has offices at Newport and Cardiff, and the Chairman of which is Mr. Watts, of the firm of Watts, Milburn, and Co., shipbrokers, Newport. The coal worked is the celebrated black vein steam coal, which contains a large quantity of gas. The depth of the pit is about 280 yards, and the seam varies in thickness from 4 to 7 ft. Its situation is on the side of the valley near the Croesos� Railway station. About 20 years ago a similar catastrophe occurred there, and nearly 150 men and boys were killed on that occasion. It is stated that after that explosion the extension of the workings was strongly condemned by the Government Inspector, who had repeatedly insisted that a new shaft should be sunk.

About 800 men are employed in the colliery, and they worked in two shifts, 400 or thereabouts going to work at six o'clock and remaining until two, and another shift working from two o'clock until ten. The colliery was ventilated by a powerful fan, and all the machinery in connection with it was perfectly new and of a first-class description. At ten o'clock on Wednesday night the men of that shift came to the bank, and all was reported well below. The small shift of men employed as reporters then descended, and commenced their work of repairing the pit, removing the falls, and propping. This shift consisted of 119 men, and set to work in the usual manner. At half-past ten o'clock Allsop, the night foreman, came up and reported all safe; but at twenty minutes past one on Thursday morning a loud report of an explosion was heard in the village, and from the volumes of smoke which arose from the pit it was seen that the gas had exploded in the pit. A carpenter named Coles had left the pit about one o'clock, and Henry Harris immediately followed him. As soon as the latter reached the top, the report of the explosion was heard. When the smoke had cleared away, Evan Evans, the underground manager; John Rodd, a pumpman; and several others, including Coles, volunteered to descend, and the force of the explosion had blown part of the engine-house into the air, and the fan was damaged. In fact it was not until eight o'clock on Thursday morning that it was repaired sufficiently to be put in working order. The pit was, therefore, without ventilation. The engine-driver had a narrow escape. Had he been standing at his place at the time of the explosion he would have met with instant death. The force of the explosion, the cause of which cannot yet be ascertained, spent itself mainly at the upcast shaft, the top of which had to be covered. When the report of the explosion was heard, and the fact of what had occurred became known, the usual scene of confusion and distress was witnessed. As soon as a descent could be made it was ascertained that the guides were not greatly

damaged.

The bottom was reached in safety, and without difficulty. The first thing ascertained was that the pumps would not draw water, but after a little attention they were made to work satisfactorily. At the bottom of the shaft the body of Bowden, the hitcher, was discovered, while a little further on two men, named Mason, father and son, were seen. Near to these were the bodies of ten more, in the middle parting, while others lay scattered about. There were also about 70 horses destroyed. The arch and other material portions of the pit were comparatively uninjured. As soon as Mr. Llewellyn, the general manager, arrived he, together with a body of men, descended, and they penetrated as far as No. 1 parting, where they met with an obstruction caused by the fall from the roof, and they were compelled to return owing to the presence of gas. Shortly before 12 o'clock Mr. Cadman, Her Majesty's Inspector of Mines for Monmouthshire, arrived, together with Mr. Bain, Assistant Inspector. Mr. Llewellyn, the manager of the pit, remained down upwards of five hours, and as time passed and no intelligence came from underground serious apprehensions began to be entertained as to his safety and that of the 17 other men who had accompanied him as an exploring party. The fear was that they had been overcome by the effects of the after-gas, but happily those fears proved groundless. At half-past one o'clock Mr. Llewellyn ascended to the bank in safety, much exhausted, and brought the melancholy news that no living soul was left who had been in the pit.

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THE MYSORE GOLD MINING COMPANY (LIMITED).—The share list for this company closed on Thursday. The exact number of applications is not generally known, but it greatly exceeds the number of shares to be allotted, and a large majority of the applications are from gentlemen who have joined the company for permanent investment and not for the sake of speculation. Comparatively few of the shares are likely, therefore, to come on the market. The allotment committee had their first meeting yesterday, and it is understood that the allotment letters will be issued forthwith, most probably on Monday and Tuesday next. The list of shareholders contains the names of many very wealthy individuals of known character, and the company is likely to rank in public estimation as one of the best, if not the best, and most favourite gold companies of the day.

SAN PEDRO (CHILI) COPPER MINING COMPANY.—This company, which went into liquidation some time ago, has been most successfully re-organised by the liquidator under the Court of Chancery. A new company was formed under the sanction of the Court and the shareholders in the old company invited to take a *pro rata* proportion of the shares, with 30s. per share credited as paid, leaving a liability of 10s. per share. Out of the 35,062 shares that existed in the old company 34,022 shares were applied for in the new company and one of the day.

ARUBA AGENCY COMPANY.—Advices from the Island of Aruba, dated June 2:—"Total quartz crushed during May, 268 tons. Bar

gold (result of first process) received 132½ ozs., or 10 dwt. per ton. The Italian miners and overseer have arrived."

WEST PATELEY (Lead).—The agent writes that the 56 fm. level west, which has gone through a course of ore for nearly 60 fms, in length, and which at one point yielded as much as 10 tons of lead ore per fathom, is now looking better than for some time past. Other points without much change. Machinery is in good order, and all going on well.

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Before the full extent of the calamity had been ascertained, Mr. Watts, the Chairman of the company, telegraphed to the manager directing that every effort

should be used to save life if possible.

THE RISCA EXPLOSION.—Mr. Henry Russell Evans, Mayor of Newport (July 16) writes:—"The sad calamity which has befallen our district, by which 119 lives have been lost, will render 350 to 400 widows, children, and other dependents absolutely without any means of support. I feel satisfied that this one fact has simply to be stated to evoke the widest practical sympathy on the part of the public generally. The Lord Mayor of London has in the most prompt and liberal manner recognised the gravity of the circumstances by opening a fund at the Mansion House, and pending the election of a local committee I shall be very pleased to receive any subscriptions which the charitable may favour me with."

CAPPER PASS AND SON, BRISTOL,

ARE BUYERS OF

LEAD ASHES SULPHATE OF LEAD, LEA SLAGS, ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c. and DROSS or ORES containing COPPER, LEAD, AND ANTIMONY.

HENRY NUTT AND CO.,

57, BRISTOL ROAD, BIRMINGHAM PURCHASERS OF

LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, TIN ASHES, TERNE ASHES, AND ALL REFUSE CONTAINING TIN AND LEAD.

GEO. G. BLACKWELL,

26 CHAPEL STREET, LIVERPOOL, PURCHASER OF

MANGANESE, ARSENIC, FLUOR-SPAR, WOLFRAM, BLEND, CALMINE, CARBONATE AND SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, OCHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS, TALC, PHOSPHATE OF LIME, &c.

HENRY WIGGIN AND CO.

(LATE EVANS AND ASKIN).

NICKEL AND COBALT REFINERS, BIRMINGHAM.

JACKSON AND BUTTERFIELD, ANALYSTS AND ASSAYERS, Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.

106, QUEEN VICTORIA STREET, LONDON, E.C.

NOTICES TO CORRESPONDENTS.

MINES IN ABEYANCE.—Particulars as to address of secretaries and offices, present position, and prospects of the following companies are sought, and any correspondent forwarding them will oblige.—O. and Co.: *City, July 12*:—West Mostyn Coal and Iron, Welsh Ironworks, East Liangynog, Alt-yr-Crib Silver-lead, Bryn Postig Mine, New Bryn Postig Mine, Cwm Yron Lead, Teras Tin, France Consols, Bessemer Steel, New Merrybent and Middleton, Tyas Mining and Smelting Company, South of Europe Mining, South Cleveland Iron.

GOLD IN WALES.—We hope to publish the valuable paper from Mr. Readwin in next week's Journal.

The London imports of coal in 1879 were 1,000,000 tons heavier than in any previous year. Of the entire shipping tonnage of the world that of the British empire represents about 58 per cent., and the mercantile marine of the United Kingdom exceeds that of all the countries of the world not included in the British empire by a tonnage equal to the entire sea-going marine of the United States, together with the merchant navy of France.

BOILER COMPOSITION.—“F. B. G.” (Snaresbrook) desires the address of Mr. J. Baker, whose boiler composition was described in the Journal of June 19.

Received.—“E. A.” (Dunlop)—“W. L.”—“Constant Reader” (Wanstead) should consult a broker respecting the matter about which he inquires; we believe that he is right in his surmises, but he had better seek full information before investing.—“M. C. D.” (New York)—“A Holder”: We could not publish such a letter without the writer's name being appended.—“A. A. R.” (Manchester) wishes to know if the prizes for the prize essays on colliery accidents have been awarded?—“F. H. S.”—“Shareholder” (Wheal Crebor)—“M. C.” (Paris)—“F. T.” (York)—“Old Hand” (Newport)—“A. G.”

The papers on the Iron Ore Mines of County Antrim, and on Mining in Llanarmon, shall appear in next week's Journal.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, JULY 17, 1880.

FATAL ACCIDENTS IN MINES

THE ROYAL COMMISSION:

It was generally expected that before the close of the present Session of Parliament the report of the Royal Commission on Mines would be placed in the hands of the Home Secretary, more especially as it has to be considered by the Government Inspectors of Mines for their opinions respecting it. This, however, it is now said is not likely to be the case in consequence of the members of the Commission going so minutely into all the circumstances attending explosions in mines, safety-lamps, and the use of gunpowder and other explosives. In the meantime, however, accidents of a fatal character occur in our mines whilst the gentlemen on the Commission are deliberating how to prevent them. Only a few days since three men were killed and five others more or less seriously injured by an explosion of gas at a colliery near to Swansea, in South Wales. The cause of the fatality is said to be the driving into some old workings by one of the miners. This was certainly a preventable accident, for the manager should have been able by his plans to show how far in certain directions the workmen could proceed with safety to themselves as well as others. It would also appear as if naked lights had been in use, or there was a defective lamp, otherwise it is not easy to see how an explosion could take place. Now, the mines in South Wales are of a notoriously fiery character, as has been shown by the many explosions that have taken place in that part of the Principality. In May last, on his attention being drawn to the verdict of the jury with respect to the Lyett Colliery explosion, the Home Secretary said he should give orders to the effect that blasting should be discontinued in fiery mines, agreeable to the provisions of the Act of 1872. Now, if blasting is prohibited in such mines surely it is equally necessary that no naked lights should be allowed where fire-damp is known to accumulate. There cannot well be an explosion without a naked light, hence the necessity for having the best of safety-lamps in mines giving off gas. This brings us round to the point that we would strongly urge—the making known of the views of the Royal Commission if they are of such moment as will prevent accidents from explosions. There does not appear to us to be any reason why the taking of evidence and reporting should occupy two or three years, during which time men are being constantly killed from causes which the Commission was appointed to prevent if possible. The Royal Commission was appointed in the early part of February, 1879, for the purpose of enquiring *inter alia* whether the resources of science could furnish any practicable expedients not now in use calculated to prevent explosions in mines.

Already the members have had nearly 18 months for taking evidence, and it is now said that some months are likely to elapse before the report will be ready. The matter to our thinking is not only most important but urgent, for if by the deliberations of the members of the Commission greater safeguards can be adopted for the prevention of accidents, why not have them brought into operation at the soonest possible moment, and prevent any further loss of life. As it is fatal accidents are of frequent occurrence in our mines, notwithstanding the peremptory character of the Mines Act, whilst miners, mining engineers, and mineowners are anxiously looking forward for the report of the eminent scientific men forming the Royal Commission, from which they have been anticipating so much in connection with the safe working of mines. Whether the report will merely consist of suggestions or material to be embodied in a supplementary Act of Parliament is a question of much importance to those who have invested their capital in mining property. But we are told on the part of the Home Office that the Government Inspectors of Mines will meet and take the report of the Commission into consideration, for the Government it appears will not take action until it has received the report, together with the conclusions of the Inspectors respecting it at their annual meeting. It is, however, doubtful (according to the Under Secretary for the Home Department) whether the report will be ready by the time the Inspectors meet, so that there is no knowing when the public and the parties more immediately interested will be made acquainted with the result of the combined deliberations of the two bodies. The matter is too serious to admit of unnecessary delay, and we trust that an effort will be made by Mr. MACDONALD or some other member of Parliament to ascertain when the long-looked-for report is likely to be ready, or whether another year will be allowed to elapse before we are made acquainted with the best means for preventing fatal accidents in mines.

OUR RAILWAY IRON ABROAD.

We think it is really a fact that the external demand for our railway iron is not exhausted, as some persons may have feared. The late check in the iron trade in the United States, followed as it was by the disastrous collapse of the Philadelphia and Reading Railroad, induced some timid observers to think that we were about to witness a repetition of the great JAY COOKE panic of 1873; but there is more real, substantial, abiding activity now in American business than there was then, and the result has been that matters have continued to move on after all reasonably well. The return to cheaper prices has, no doubt, a tendency to induce a revival in consumption; and we find, at any rate, that the consumption of our rails in the United States proceeded in June upon a very considerable scale. In that month we sent the Americans no less than 34,216 tons of our railway iron, while the corresponding exports to the United States in June, 1879, did not exceed 4834 tons, and in June, 1878, 312 tons. In the first half of this year the United States took our railway iron to the extent of 128,088 tons, while our corresponding exports in the same direction in the first half of 1879 did not exceed 7738 tons, the still smaller total of 464 tons being attained in the corresponding period of 1878. The specially encouraging feature about the returns relating to the exports of our railway material to the United States appears to us to be the continuance of the shipments upon a very considerable scale during the last month of the past half-year.

Another circumstance which supports the railway iron trade at the

present is the happy vigour of the colonial demand. Thus our exports of railway iron in June to the four principal colonial groups, compared as follows with the corresponding exports in June, 1879, and June, 1878:—

Colonial Group.	1878.	1879.	1880.
British America	7,364	7,903	18,086
British Africa	1,345	212	1,145
British India	7,349	6,811	22,816
Australia	5,214	3,011	15,842
Total	21,272	17,937	37,889

These figures appear to us to show plainly that prices have a very great deal to do with the colonial consumption of our railway material. Upon no other hypothesis can we explain the very large increase which is noticeable in the consumption this year. The colonies all want railways very badly. They have few good ordinary roads, and consequently the necessity for improved communication is imperative. But colonial Governments do not possess the great resources at the disposal of older communities, and they have accordingly to expend their capital with care and economy. Railways have been falling lower and lower and lower for the last four or five months, and the result has been that colonial Governments have been at length tempted to make purchases with a certain freedom. The improvement in the colonial demand will be seen to have been universal this year, and this affords a strong proof that the increase in the consumption proceeds from one and the same cause. The general conclusions which we draw from an examination of the statistics which we have been summarising are highly encouraging. We exported in June this year 100,332 tons of railway iron as compared with 40,992 tons in June, 1879, and 51,198 tons in June, 1878. Figures such as these do not bear out the theories of some American writers, who would have us believe that our industrial greatness is on the wane.

SOUTH AUSTRALIAN COPPER MINES AND RAILWAY.

Some 20 or 25 years ago the inhabitants of Adelaide were electrified by the reports that reached them from explorers in the far north of the discovery of mountains of copper, and lodes of rich ore cropping up to the very surface, that they had paced for 60 paces wide. These wonderful reports subsequently proved to be true. Mining grants were obtained by the fortunate discoverers, and large fortunes were expected to be realised. Among the many mines opened up was the Blinman; that soon raised and sold ore yielding 30 per cent. of mineral to the value of a quarter of a million, and employed a population of 1500 persons. This mine, together with others, was situated some 150 miles from Port Augusta, the nearest shipping place to which the ore had to be conveyed by bullock teams or wagons drawn by six horses, and from whence all stores were obtained, the cost of cartage being from 10/- to 12/- a ton; this will readily be seen when it is stated that during the dry season two drays loaded with provender for the cattle had to accompany the one conveying the ore. In crossing a creek or getting stuck fast in a rut it frequently happened that much of the ore had to be thrown out to lighten the wagon, and was left behind and lost. The wagons cost about 40/- each, and the horses 25/- each, so that a team with harness complete would cost about 200/. A wagon would only carry 24 tons, consequently to convey 250 tons of ore per month to the port would necessitate the employment of 100 wagons, representing 4000/-, and 600 horses with harness, 17,000/-, making in all a total of 21,000/. for plant to convey only a moiety of the produce that could be raised at one mine alone. This heavy expense of cartage proved a great drawback, and prevented many of the discoveries being worked; nevertheless, the Blinman raised and sold ore to the value of 250,000/, but the expense of cartage of the ore and stores cost them over 50,000/, and absorbed nearly all the profits.

Wonderful discoveries continued to be made from time to time of further large deposits of rich copper ore, some assaying as high as 70 per cent. of fine copper to the ton; and as the ores of Devon and Cornwall only average about 6 per cent. of metal, some idea of the extraordinary richness of the ores may be gathered when it is also stated that no ore was sold that did not yield about 20 to 30 per cent. The actual cost of raising the mineral was merely trifling—from 3/- to 5/- a ton. In some instances gunpowder was only necessary to blast out the malleable or virgin copper. It was not mining, but quarrying—for instance, at one mine the ore measured 37 ft.; at another 15 ft.; and at the Blinman 6 ft. wide, of solid ore, from which masses of solid ore of 2 or 3 tons weight were broken, averaging 35 to 60 per cent. without dressing. At another place the walls of the lode cropped up about 3 ft. above the surrounding country as though the soil had been all washed away from it on purpose to serve as a landmark for the miner to go and take its riches away.

It also appears there are other riches besides copper ore in this part of the world. Mountains of marble 30 to 40 miles long are reported. Large masses of iron ore yielding 50 to 90 per cent. of pure metal, as well as ores of bismuth, manganese, lead, silver, and gold. Gems have also been found, diamonds, the white and yellow topaz, cornelian, agate, amethyst, garnet, and other valuable stones.

In the year 1866 this part of Australia was visited by a dreadful drought that continued for six years, and killed all the cattle, together with 700,000 sheep. The cartage of the mineral came to an end, as no monied offer would tempt those possessing horses to run the risk to themselves and cattle of a journey of 150 miles to and from this district. The price of copper ore also fell, and all the mines and explorations were stopped, fortunes vanished, capitalists buttoned up their pockets, miners' hearts were broken at being obliged to leave such wealth of mineral, surpassing in richness and extent anything they had ever dreamt of beholding, the mineral rights again reverted to the Government, and Nature's riches remained untouched, as they had done for centuries before.

After the lapse of several years the tradition of this Eldorado was again revived in men's minds, an agitation for a railway was set on foot, and the Government of South Australia was induced to appoint a Parliamentary Committee to take evidence and report what had better be done.

The Committee reported: “Your Committee have to report that they have examined a great many witnesses, and have collected much valuable information relating to the Northern mineral district. Many of the witnesses examined by your Committee are men having much practical experience in mining, and consequently well qualified to give an opinion as to the probable mineral value of the district. It affords your Committee, therefore, much satisfaction to be able to report, that judging from the richness of the ores which crop out to the surface in numerous places over a very large area of country, there can be scarcely any doubt that in the northern country—having Port Augusta in the south for a shipping place, to beyond Mount Rose (200 miles) in the far north—this colony possesses a mineral district of the most valuable character. The character of the ore, wherever it has been raised, is described as being of the most valuable as sort—virgin or native copper, grey sulphure, red oxide, green and blue carbonate, and malachite. The evidence does not show that any yellow sulphure or other low percentage ores, such as the Cornish and Devon lodes principally consist of, have been met with; but your Committee need not inform you of the well-known fact that in working and raising these rich ores a vast quantity of mineral must necessarily be brought to grass which would reduce the average percentage of the bulk considerably.”

However, nothing further was then done, and several years slipped away, until some gentlemen having taken up the former mineral leases that had reverted to the Government another agitation was made for a railway, and the Government appointed another Committee, who reported:

“Your Committee, in the prosecution of their enquiry, have examined various witnesses, and have received documentary evidence. The whole evidence goes to show that the country in the far north is exceedingly rich in mineral deposits, and offers a rare opportunity for the profitable investment of capital. It is in evidence that one mine alone (the Blinman) is supporting a population of 1500 persons, and that if facilities of transit were offered there are many mines of equal, and even superior, value that could be immediately and profitably worked.”

Mr. AUSTIN, in his work on the Mines of South Australia, alluding

to the same district after a personal inspection of the seven coveries says:—“With this important auxiliary (the railway) to successful working, wealth almost unimaginable may be developed and employment found for thousands of persons.”

In the meantime, the colony having become rich and prosperous upwards of a million sterling, and having in view the large quantities of ore and agricultural produce that will be sent to Port Augusta, requiring accommodation for shipment, have also decided to construct a long line of large wharves, 4500 ft. in length, and pay a rate rent of 5 per cent. per annum on the cost of construction for 100 miles of the railroad is already made to Edicoule, and the remainder is under contract to be completed by October, 1881.

South Australia is known throughout the world for its wonderful copper mines—the Moonta and the Burra Burra. The latter having paid in dividends upwards of 1,024,000/- and the former 800,000/- on an original capital of only a few hundred pounds. In a short time we may now expect to hear of the development of the Moontas and Burra Burra mines in the far north, and as many mines will now be worked that will yield large quantities of ore, the ores can be so easily raised and are reported to be far richer than those of the above mentioned mines.

Chill produces more copper ore than all the rest of the world together, but according to one witness examined by the Committee the output from this favoured mineral district is likely to remain altogether as far as production goes. The mineral rights in Australia appear to be equally distributed over the island. In south copper is abundant; in Victoria gold preponderates; and in New South Wales coal is found.

THE WYNAAD GOLD MINES, SOUTHERN INDIA.

In connection with the recent movement for the development of the gold deposits of the Wynnaid district the case of Harris and Fleming (which really affects many of the Indian gold companies already formed) was again before Vice-Chancellor Hall on Tuesday. It will be remembered that this was an action in which Mr. Harris, of Redruth, the discoverer of the gold mining property, India, seeks for a declaration that under an alleged agreement partnership, made between him, Mr. Mathew Morton, and the firm of W. Nicol and Co., of Bombay, he became entitled to one-third of the profits arising from the acquisition of the Sepoy Estate, and other gold mining properties in the Wynnaid district of South India, and for accounts against the defendants on that estate. He also sought for an injunction to restrain the defendants from carrying into effect an agreement made in April of last year whereby Mr. R. P. Harding, acting for the trustees of the firm of Nicol and Co., agreed to sell to the Indian Gold Mines Company (Limited) the properties in question, unless such agreement carried out upon the footing that he was entitled to one-third of the profits arising from such properties. An application was on the day last made to the Vice-Chancellor, Sir C. Hall, for the appointment of a special examiner to take at Bombay the evidence of the defendants, Messrs. John Fleming and Hamilton Maxwell, that a writ in the nature of a mandamus might issue to the Judge of the High Court at Bombay for the examination and examination of those defendants, and that the trial of the case might be postponed until the return of the depositions or the application of a special examiner to take at Bombay the evidence of the defendants, Messrs. 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of the preceding year, due principally to a better water supply incing operations, and to the opening up of deep mining ground at Beaumont; but, owing to the exhaustion of the auriferous drifts older workings of the gold fields, it is hardly to be expected that yields from this class of mining will show any lasting improvement. There is still a slight falling off in the yield from quartz veins. The past year shows no alteration in that respect from those preceded it back to the year 1871, except that the diminished output of the last year and of the year 1878 are comparatively small. However, to quartz mining that we have to look hopefully for progress, and it is confidently anticipated that the recent discoveries of extensive and highly auriferous quartz veins at Ballarat, close contiguity to the deep alluvial leads so long and profitably sought on that gold field, together with a great improvement in the prospects of vein mining at Maldon and other places, will cause an increase in the yields from this class of mining for the current

THE SPANISH LEAD DISTRICTS.

The fluctuations in the output of the Spanish lead mines take people by surprise because they have no means of estimating the causes which underlie them, the United States Iron Age, therefore, gives a full account of them to the end of 1877. The two most important districts of Spain are those of Linares and Cartagena, the former situated on a southern spur of the Sierra Morena in the province of Andalucia, on a tributary of the Guadalquivir, the latter being near the south-eastern coast in the province of Murcia. Mining in Linares dates back to the times of the Phoenicians, Carthaginians, and Romans, being attended with varying success until they were almost completely abandoned soon after the discovery of rich veins in America, the king decreeing that no mining should be done in Spain, a measure probably designed to force the development of the richer transatlantic mines. During the middle of the 18th century the state undertook to work the largest deposit of the district, that of Arayanes, and since then operations have always continued. It was not, however, until foreign (chiefly English) capital was employed in the district, and railway communication with Madrid, Seville, and Valencia, was opened, that it rose to its present importance. The Linares district extends two miles north of the city, in a south-easterly direction, for about $\frac{1}{2}$ miles, having a width of about 5 miles. It is, therefore, comparatively small. The chief rock of the region is a close-grained granite, which is partially decomposed, in close proximity to veins, to a depth of over 100 ft. It frequently crops out, especially toward the north, but considerable areas are covered by a series of strata, the geological horizon of some of which has not been accurately determined. The ore dressing yields three grades of material—galena running from 76 per cent. to 80 per cent. of lead; sand carbonates (although they do not contain carbonates) assaying from 35 per cent. to 40 per cent., and fine ore running from 60 per cent. to 70 per cent. The carbonates are almost exclusively shipped to Cartagena; the other grades are either smelted at Linares or at Almeria or sold for export to Germany. The second great lead-producing district of Spain is that of Cartagena, which some decades ago occupied the first rank. The lead ore deposits of the Sierra de Cartagena, east of the town of that name, had, like those of Linares, attracted the attention both of Carthaginians and Romans, whose activity in mining is shown by innumerable piles of slag. No work of consequence was done until 1840. In 1842 three smelters turned out a few tons of lead, but during the succeeding years the output continued to grow until 75 works turned out, in 1862, 17,478 metric tons of lead, while 68 smelters made 17,753 tons in 1873. It is stated that their number increased to 100 in 1877, which produced 35,000 tons of lead. The main reason why mining in the Cartagena district has fallen off is that the claims are, as a rule, very small, and the holders find it impossible to undertake important work of development. When the large "crestones" were being worked this did not signify much, but now that systematic work, requiring capital and experience, must be done, they are incapable of advancing. The only point favoring them is that the lead ore is much richer in silver than that of the Linares district, averaging as it does from 50 ozs. to 80 ozs. ton. Under the present system—or, rather, lack of system—the Cartagena district must continue to lose ground. It is only by the introduction of foreign capital that its resources, which still appear to be great, can be made largely available.

GOLD MINING IN INDIA.

With regard to the prospects of dividends being earned upon the British capital embarked for the development of the gold fields of the Wynnaid district, it must be admitted that those resident in the locality are much better able than any can be in this country to form a reliable opinion, and it is, therefore, gratifying to learn that the reports from the neighbourhood of the mines are without exception encouraging. The South of India Observer points out that it is nearly 20 years since the Hon. Mr. Duncan, Governor of Bombay, sought vainly to procure information respecting the auriferous resources of Madras. At various times since enquiries have been made, but without throwing much light on the most important question—whether or not the mines would prove remunerative. Of course, being a matter for the consideration of Government a committee was appointed whenever pressure was brought to bear on the administration, but the committees did harm rather than good. The members were entirely ignorant of gold mining, and accordingly they, as ignorant persons invariably do, decided all vexed questions quickly and authoritatively.

The researches of Mr. Sheffield and Lieut. Nicholson in 1831 have frequently been noticed in the *Mining Journal*, and their want of success threw the matter into abeyance until about 15 years ago, when Mr. H. L. Sterne, who had had some gold mining experience in Australia and California, set out on a general prospecting expedition into the Wynnaid, seeking for gold or any other metals or minerals which could be turned to profitable account. Mr. Sterne without assistance, and probably not acquainted with the modes of occurrence of gold in ancient metamorphosed rocks, so different from the Silurians of Australia or the Jurassic strata of California, did not meet with so much success as to enrich himself, but he proved beyond doubt that the Wynnaid was an auriferous country. For nearly 10 years subsequent to Mr. Sterne's explorations but little was done by prospectors, the Alpha Gold Mining Company being then formed. They erected a 15-heads battery, and with insufficient engine power, lack of proper arrangements in placing the plates and tables, and a general disregard of all the precautions necessary in attempting to save the precious metals, they nevertheless were able to obtain gold from 300 tons of quartz at the rate of 2 dwts. $8\frac{1}{2}$ grs. per ton. The mill was then leased to the Prince of Wales' Prospecting Company, and they crushed 322 tons of quartz with an average of 10 dwts. 12 grs. per ton, besides picking out specimens which were sold for about £200.

These results were sufficient to attract attention, and the reports of competent authorities called in to inspect showed clearly that the gold in the Wynnaid was worth further attention. A gentleman now in India, who was at that time a member of the Viceroy's Council, secured the appointment of Messrs. R. Brough Smyth and Thomas Lawrie as chief and assistant mining engineers, and in July, 1878, they set to work in the Wynnaid. For a long time but little was known of the results of their observations and labours. Occasionally it was rumoured that they had found a rich gold field, but nothing certain was allowed to transpire. At length in 1878 his progress report was published, and for the first time the public and the Government became aware of the hidden wealth of the Wynnaid. His final report, which has been republished in London, has established confidence. He has given tables of yields of numerous parcels of quartz containing some 40 separate reefs; he has shown on a map lately published the reefs of quartz veins over an area of about 350 square miles, and has shown that in Australia a yield of 1 dwt. $16\frac{1}{2}$ grs. per ton will, with economy and under favourable conditions, cover all expenses; and that from 2 dwts. to 3 grs. will give a profit. Engineers are already employed in several localities near Devalah. Some of these gentlemen have been engaged in gold mining for over a quarter of a century, and their experience and knowledge will be a great gain to the country. Machinery for crushing and treating quartz is being

landed, and we shall soon, perhaps, ascertain what the aggregate yield of gold will be when (say) 400 or 500 stamp-heads are at work. The aggregate capital raised up to the present time is probably not far short of £1,500,000, and considering that a larger sum than that is invested yearly in Australia in gold mining adventures, it is not an unreasonable amount, more particularly as the right to mine for gold in India has to be acquired either from the Government or from Zemindars.

It is not unreasonably estimated that with skill, care, and good machinery, the output of gold in India will not be less per stamp-head than that of California or Australia. Mr. Brough Smyth has indicated the localities of ancient native workings and quartz reefs over an area extending from Nellambur on the south to Nellacotta on the north, and from near Gudalur on the east to Vellarmulla on the west. Prospectors are at work still further westward, and from specimens tested in the laboratory gold has been got in quantities sufficient to encourage further research. Probably at and beyond Vythyra auriferous veins will be discovered. More than this, gold has been found on the west coast in South Canara, where Mr. Brough Smyth has lately been; and the reefs at Nanjanad, only six miles from Ootacamund, are thick and highly pyritous, the yield of gold from some parcels being as high as 6 dwts. and 7 dwts. per ton. There is scarcely an acre of ground at Devalah or near the reefs at Nanjanad which has not been "washed" again and again by the native miners in ancient times. As regards the soils, these are "worked out" gold fields, but the reefs and veins, the depositories of the gold, remain, and to them attention is now directed. To what extent the Government will assist this new enterprise by framing simple, just, and easily understood regulations, what kind of a front it will present under somewhat difficult and novel circumstances, and whether any one in the employment of the Government has the knowledge and experience which are so requisite in dealing with gold-mining and gold miners time alone will show.

THE PANAMA CANAL.

Although from the time of Charles V., to judge from a letter of Fernando Cortez to that monarch, the importance of intercommunication between the Atlantic and Pacific by way of the Central American isthmus, has been fully recognised; it is only now that the practical details necessary for securing that advantage have been really obtained. It appears from the Bulletin du Canal that Mr. Vallée, of the National Library, has collected in a highly interesting volume the letters of Fernando Cortez to Charlemagne, in one of which the conqueror of Mexico mentions to the Emperor that he was sending expeditions to find the strait which was supposed, according to Christopher Columbus, to exist across the isthmus, and pointed out the great advantage which that route would present as compared with the Straits of Magellan. He was deeply indebted, and all necessaries were dear, notwithstanding the richness of the country, whilst the taxes did not meet the expenditure, yet he borrowed money and was about to spend 10,000 piastras to send off three caravels and two brigantines to discover the strait. There were other projects which he contemplated carrying out "in the month of July of this year 1524," but he added that he should neglect everything in order to discover the strait, which he regarded as of paramount commercial importance.

But the desirability of the communication between the two oceans being admitted, there remains the important question whether the natural facilities for carrying out the work justify it being undertaken, and whether it can be done within a reasonable time. Upon both these points the facts collected are most encouraging. The supposed insalubrity of the climate is said to be entirely imaginary, as M. de Lesseps proved by going there with his family, and he has found that the canal can be made without resorting to locks or a tunnel. The length of the canal to connect the Bay of Limon with the Bay of Panama will be 73 kilometres, and the quantity of ground to be removed (including the rectification of the Chagres) is calculated at 75,000,000 cubic metres. This it is estimated could be done in six years, reckoning 250 working days per year, and the employment of 8000 men, capable of handling 50,000 cubic metres per day; that is rather more than 8 cubic yards per man per day, with the machinery and motive-power necessary. Accepting these figures as correct there are really no insurmountable obstacles to overcome, and the enterprise promises to be far more remunerative than the Suez to those embarking their capital in it.

ROYAL SCHOOL OF MINES.

At the annual meeting of the Council of the Royal School of Mines the Prizes and Associateships were awarded as follows:—
The Edward Forbes Medal and Prize of Books to H. M. Platnauer.
The De la Beche Medal to John Green.
The Murchison Medal and Prize of Books to H. M. Platnauer.

ASSOCIATES—MINING AND METALLURGICAL DIVISION.

- E. B. Lindon (1877-80).
- P. W. S. Menteth (1864-5 and 1878-80).
- Ralph G. Scott (1877-80).

MINING DIVISION.

- John Greene (1877-80).
- B. Mott (1876-80).
- H. E. Tredcroft (1872-76, and 1879-80).

METALLURGICAL DIVISION.

- R. S. Benson (1877-80).
- J. J. Berringer (1877-80).
- D. B. Bird (1877-80).
- H. S. Cotton (1877-80).
- W. Cross (1877-80).
- W. L. Grant (1877-80).
- G. S. Grundy (1876-80).
- C. L. Higgins (1877-80).
- B. McNeill (1878-80).
- T. H. Reeks (1877-80).
- James Taylor (1871-4 and 1878-80).

GEOLOGICAL DIVISION.

- H. H. Hoffert (1876-80).
- H. M. Platnauer (1877-80).

COLLIERY MANAGERS' CERTIFICATES.—The results of the last examination for certificates of competency as colliery managers, have just been received from the Home Office. The examiners were Mr. G. C. Greenwell, Tynemouth; Mr. C. G. Jackson, Chamber Colliery, Oldham; and Mr. N. R. Griffiths, Wrexham. There were 22 candidates, and the following have been successful in passing the examination:—Henry Cook, Haydock, St. Helens; C. Cockson, Wigan Coal and Iron Company, Wigan; R. A. Booth, Onell Mount, Wigton; John H. Darby, Brymbo, near Wrexham; T. R. Davis, Adwy Clawdd, Wrexham; Charles Fergie, Ince, Wigan; T. D. Grimke, Swinton, near Manchester; Henry Headley, Coppa Colliery, near Mold; John Knowles, Ince, Wigan; R. B. Lawson, Rose Bridge Colliery, Wigan; John Boughton, Thates Heath, near Prescot; A. E. Webster, Wigan Coal and Iron Company; Samuel Gregory, Hawarden Colliery, near Chester.

GOVERNMENT STEELMAKING.—Mr. Walter Ness, who has lately been making experiments at Woolwich and elsewhere in this country, with a view to the utilisation, for the Indian Government, of the iron ore and coal of the Charda district of the Central Provinces, has now gone to America in pursuance of the same investigation. The iron ore is rich, and the coal is poor and sulphurous. The fuel will not smelt the ore in the usual way, and it is sought to first reduce the ore to an iron sponge, and then melt in crucibles. Treated in this way, excellent tool-steel is the result; but the sulphur imbibed from the coal makes the steel unfit for railmaking. By a free use of lime the sulphur difficulty may be largely overcome, but an out-turn of 5 cwt.s. a day only would not be commercially profitable. By his journey to America, Mr. Ness hopes to secure a furnace which will permit of a larger output; or one that will otherwise enable the

Indian Government to efficiently utilise the minerals which, in the Central Provinces, they possess in practically unlimited quantities.

ARTIFICIAL DIAMONDS.

It will be fresh in the memory of some of our readers that a few months ago a statement was made to the effect that diamonds had been artificially produced in Glasgow by a process not yet divulged, and that, having been examined by the highest chemical and mineralogical authorities, the new gems had been found to satisfy all the conditions hitherto alone supplied by the diamonds from Nature's own laboratory. When, however, it became known that the new diamonds were almost microscopic, and that a gem worth 10s. cost 5d. to make, the interest in the subject somewhat diminished. It has, however, revived on the publication by Mr. G. B. Hannay, in the recently-issued number of the "Proceedings of the Royal Society," of the precise method by which he obtained his startling and novel results. And if only as a record of indomitable perseverance against ever-increasing difficulties, of scientific acumen, and of the true application of the Baconian method of research, it is worthy of study. Some idea of the nature of the investigation may be obtained from the fact that out of eighty complex and expensive experiments only three succeeded. Violent explosions were frequent; furnaces were blown to pieces; steel tubes burst, scattering their fragments around. On other occasions tubes which had been carefully prepared, filled, welded, and nested in a reverberatory furnace for many hours, were found to have leaked, and spoiled the experiment. "The continued strain on the nerves," writes Mr. Hannay, "watching the temperature of the furnace, and in a state of tension in case of an explosion, induces a nervous state which is extremely weakening, and when the explosion occurs it sometimes shakes one so severely that sickness supervenes."

The diamond-making experiments were started in September, 1879, when Mr. Hannay made many attempts to find a solvent for the alkali metals, sodium, potassium, and lithium. But in no instance could such a solvent be found which did not in the gaseous state, and under pressure, unite with the alkali. Even in the case of hydrocarbons, such as paraffin spirit containing only hydrogen and carbon, the alkali combined with the hydrogen, setting free the carbon. Now, as we know, diamond is pure carbon; hence, when this element was set free from a pure substance, it was thought that conditions of pressure and temperature might eliminate it in the hard, crystalline, adamantine form—as diamond. Glass tubes were first employed, but although of great thickness in comparison with their bore, they were found to be insufficiently strong, and they were replaced by wrought-iron tubes 20 in. long by 1 in. diameter, and having the diameter of the bore $\frac{1}{2}$ in. In these lithium was heated for many hours to a high temperature in paraffin spirit, and on subsequently opening the tube carbon in a hard form was found within it. Great difficulty was experienced in getting the tubes perfectly air-tight, and eventually the open end was welded, at a white heat, and by that means alone did it resist leakage. Sometimes tubes would burst with an explosion like a gun. A tube 20 in. long by $2\frac{1}{2}$ in. diameter and $\frac{1}{2}$ in. bore, was filled with a hydrocarbon made from bone oil, to which some charcoal powder was added in order to keep an excess of carbon in the tube. Its open end was welded, and it was heated for 14 hours, with lithium. On opening it a quantity of gas appeared and some minute pieces of hard carbon which had evidently separated out from solution. Another similar tube burst at the end of 8 hours' heating. A tube of cast-iron no less than $3\frac{1}{2}$ in. diameter, and with a bore of only $\frac{1}{2}$ in., exploded at the end of an hour with a fearful report, wrecking the furnace. Several tubes of steel also burst under the enormous pressure, at last shattering the top of the furnace. The author remarks that in nature the temperature must at one time have been much higher than anything we can now produce artificially; while the pressure obtained at a depth of 200 miles below the earth's surface is greater than that which any of the materials from which we can form vessels can resist.

We come now to the great experiment which resulted in the artificial production of veritable diamonds. A tube 20 in. long by 4 in. diameter, of coiled Lowmoor iron, was bored so as to have an internal diameter of $\frac{1}{2}$ in. Thus the central bore was surrounded by walls of iron, $1\frac{1}{2}$ in. thick, and of course capable of resisting an enormous pressure. In the tube was placed a mixture of 90 per cent. of rectified bone oil, and 10 per cent. of paraffin spirit, together with 4 grammes (about 62 grains) of the metal lithium. The open end of the tube was welded air-tight, and the whole was then heated to redness for 14 hours, and allowed to cool slowly. On opening it a great volume of gas rushed from the tube, and within was found a hard, smooth mass adhering to the sides of the tube. "It was quite black, and was removed with a chisel, and as it appeared to be composed principally of iron and lithium it was laid aside for analysis. I was pulverising it in a mortar when I felt that some parts of the material were extremely hard—not resisting a blow, but hard otherwise. On looking closer I saw that these were most transparent pieces imbedded in the hard matrix, and on triturating them I obtained some free from the black matter. They turned out to be crystalline carbon, exactly like diamond." Such is Mr. Hannay's account of his discovery. Subsequent chemical and optical analyses have proved that these hard shining crystals are in every respect true diamonds. The cost is obviously great; so also is the danger to life and property; and the great difficulties to be overcome render disappointments common. What we now want is to get vessels of a material sufficiently strong and non-porous to resist the high pressures and temperatures upon which the success of the experiment depends. What we have learnt, among other things, from the brilliant researches of MM. Cailliet and Pictet, which led to the liquefaction of the so-called permanent gases, and from Mr. Hannay's experiments described above, is that we must push the forces of nature to their utmost strain by using our most powerful mechanical devices for producing pressure, our strongest materials for resisting it, and our intensest means of producing both heat and cold. Never was the Baconian aphorism—*occulata natura magis se produnt per vexationes artium quam cum cursu suo meant*—more applicable than to experiments of the nature of those which Mr. Hannay has so ably carried out, and which have led to the production of a substance which had hitherto kept the secret of its formation securely shut up in the bowels of the earth.

GOLD MINES IN JAPAN.—From a consular report just issued, it appears that three gold mines are now being worked at Shimo Aikawa, in the island of Sado. They were first discovered in 1613, since which time they have been steadily worked by manual labour until 1869, in which year machinery was introduced by the Government. The main shaft is sunk to a depth of about 600 ft., and two of the mines are connected by a gallery 3000 ft. in length. First-class ore contains from 50 to 2000 yen worth of gold per ton (one yen equals 4s. 2d.) The ore is crushed at the top of the mine, reduced to powder by stamps, and ground up with mercury into an amalgam, which is distilled and afterwards made into gold and silver ingots. Silver and lead are also obtained from the ore, the latter being collected into a mass of some 20 tons, cupelled by a German furnace, and the bullion extracted and made into ingots. In 1878-9 the amount of ore reduced was 6428 tons, yielding 2195 ozs. of gold and 91,713 ozs. of silver, at an expenditure of 85 per cent. Altogether, the Government has spent 334,570 yen in erecting machinery, and the total loss during the ten years has been 240,126 yen. Upwards of 1080 persons are employed, including 120 women for ore-picking. The daily output is 20 tons, and about the same quantity is reduced at the works, which consist of four smelting furnaces, one German cupelling furnace, six amalgam pans, ten stamps, two concentrating presses, two steam-engines, one copper refinery, one assay room, and twelve coke kilns, and this plant is about to be still further increased by the present superintendent.

HERCULEAN LEVER WHEEL.—A new wheel, which it is considered will be very useful in connexion with colliery trains and tramway cars, as well as in its application to flywheels, cranes, &c., has been invented by Mr. W. J. Brewer, formerly of Bombay, and is now being manufactured by Messrs. Bailey and Co., of Manchester. The invention is of an extremely simple character, the principle of it being

the same as that of the cog wheel. The ordinary wheels of all wheeled conveyances, instead of being placed in a box, are kept in position by vertical guides. The axles of the main wheels are worked upon by the patent lever wheels, the axles of which are in a box directly above, and in the same guides supporting the ordinary wheel, the spring of the vehicle being attached to the lever wheel. As soon as any motive power is applied to the vehicle in which the lever wheel is fixed, it immediately sets it in motion, and thereby saves an extra force usually required to support a vehicle. Mr. Brewer claims that the invention can be fitted easily and with little cost to any vehicle, and that it will effect a saving of at least 50 per cent. in the motive power. It appears that with the patent wheel a carriage of a given weight can be started with half the usual power. A block, constructed on the same principle, was tried on board the ship James Aiken, lying in the harbour at Bombay. The result showed that the best American patent roller block required from nine to ten men to hoist a bale of cotton, while with Brewer's patent block it only required five men, thereby saving half the motive power.

COMPARISON BETWEEN THE AVERAGE COSTS OF THE PRODUCTION OF IRON IN FRANCE AND IN ENGLAND.*

In the course of a report drawn up on behalf of the Commission of the Chamber of Deputies appointed to consider the suitability of the rate of duty of 6 frs. per 100 kilogs. proposed to be charged on malleable iron imported into France, the author discusses at some length the relative costs of production of bar-iron in France and in England.

He estimates that English coal costs on the average 6.25 frs. per ton at the pit's mouth, and French coal 11 frs., and that, at the same time, French coal of average quality is so much inferior for smelting purposes to English coal that 1600 kilogs. of it are needed, as compared with 1350 kilogs. of English coal, to make a ton of coke; and the coke contains 12 to 16 per cent. of ash, against 6 per cent. only in England, so that 1200 kilogs. of it, instead of 1100 kilogs. only, are required in the blast-furnace per ton of pig-iron made. In the cost of the coke only that is used in the blast-furnace the expense of making pig-iron in France thus exceeds that of making it in England by more than 12 frs. per ton. France it is estimated is at a further disadvantage in the cost of carriage of the iron-making materials to each other or to the works. This is owing in part to the fact that iron ore and coal lie much further apart in France than in England, and in part to the want in the former country of a more complete system of canals, so that the materials have to be conveyed to a great extent more expensively by rail. It is assumed that the cost of the labour required in iron making is the same in both countries, and that the cost of the ore at the mine, and its average richness, and the cost of fluxes are also the same; but the author remarks that in the richness of its ores and in the proportion of lime that must be smelted with them for fluxing, on account of their siliceous character, France is also in truth at a disadvantage as compared with the competing countries. The following is a summary of the relative costs of production of cast and wrought iron in the two countries, noting only the items of expense in respect to which they differ. In France the works that produce pig-iron convert it also habitually into wrought-iron. In England, on the contrary, the pig-iron is more commonly carried to a point nearer to the collieries, to be there made into wrought-iron. Hence in this estimate the carriage of the coal used is charged as part of the cost of making pig-iron into wrought-iron in France, and the carriage of the pig-iron as part of the cost in England.

1.—Production of pig-iron:

France.	Frs.	England.	Frs.
Coke, 1200 kilogs., at 20'60 frs. ...	24.72	Coke, 1100 kilogs., at 11'45 frs. ...	12.60
Carriage of this coke, at 8 frs. ...	9.60	Carriage of this coke, at 4 frs. ...	4.40
Carriage of 3 tons of ore, at 3'50 frs. ...	10.50	Carriage of 3 tons of ore, at 1 fr. ...	3.00
Total of these items 44.82		Total of these items 20.00	
Difference in favour of England, 24.82 frs. per ton.			

2.—Conversion of pig-iron into wrought-iron:

France.	Frs.	England.	Frs.
Pig-iron, 1400 kilogs., at 42'82 frs. ...	62.73	Pig-iron, 1400 kilogs., at 20 frs.	28.00
Coal, 2500 kilogs., at 11 frs.	27.50	Coal, 2500 kilogs., at 6'25 frs.	15.63
Carriage of this coal, at 8 frs. ...	20.00	Carriage of the 1400 kilogs. of pig-iron, at 4 frs.	5.60
Total of these items 110.23		Total of these items 49.23	
Difference in favour of England, 61 frs. per ton.			

Germany and Belgium are at a greater advantage than England in their cost of producing iron, as though their coal is no better than French coal labour with them is 30 per cent. cheaper. Thus the average cost of coal in Belgium being 8 frs. per ton, and in Germany 6 frs. per ton, the difference in the cost of production of bar-iron, as compared with that in France, is estimated to be 63'10 frs. per ton in favour of Belgium, and 73'48 frs per ton in favour of Germany.

France is at even a greater disadvantage as compared with foreign countries in the production of high-class charcoal iron than in that of coke iron, and the make of this class of iron in the country has fallen off from 90,654,000 kilogs. in 1859 to 21,100,000 kilogs. in 1877, a quantity only equal to that imported in the same year. The difference between the cost of production of charcoal bar-iron in France and in Sweden is not less than 120 frs. per ton.

—By M. DANIELLE-BERARDIN: Revue Industrielle.

* From JAMES FORREST'S "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institute of Civil Engineers.

CHEMICAL PURIFICATION OF SMALL COAL.

In treating small coal for the manufacture of coke or for agglomerated fuel, the washing of the coal is usually effected with water, but this gives such incomplete results that it is in many cases applicable. Mr. CHARLES TELLIER, of Paris, proposes to wash the coal in solutions sufficiently strong to effect the separation of the inert matters, instead of employing simple water as hitherto. He states that all liquids which are sufficiently dense to allow the coal to float therein may be employed, but he prefers to employ solutions of chloride of calcium or of magnesium, as these possess the advantage of being low in price and easily dissolved in water in any proportions, and of forming solutions of sufficient density for effecting the separation of the inert matters. This separation may be facilitated when working with coal of great density by giving a rapid circulation to the washing liquid either in a vertical or horizontal direction, but this circulation will be rarely required.

In practice the invention involves two principal operations—the separation of the inert matters, and the recovery of the separating liquid drawn off by the substances operated upon. For separating the inert matters he throws a quantity of coal in a bath of chloride of calcium at 45° (which is the degree he has found to give good results, but which may be varied), and immediately the coal will be seen to separate into two parts, the light part floating to the surface, whilst a portion of the mass operated upon will fall to the bottom of the receiver; this part is the waste product, and its proportion will vary from 10 to 15 or 16 per cent. according to the quality of the coal. On the commercial scale a cistern with bituminous walls (for preventing it being attacked by the liquid employed) is dug in the ground or built above it by means of suitable walls of sufficient strength and resistance. The lower part of this cistern terminates in the form of a cone, which a communicates with a pump so constructed as to be able to work, whatever be the quantity of solid matter drawn off, and it is by means of this cone and pump that the waste products are drawn off. The proportion between the delivery of the pump and the volume of the waste products to be extracted may be estimated as one to five. The coal may be treated in pieces of any uniform size, but as lumps contain crevices enclosing foreign matters, it is preferable to break up the coal in such a manner as to entirely expose these foreign bodies. Any kind of apparatus may be used to reduce the coal to uniform size, which coal is admitted through a hopper into the separating bath in which the heavier matters go to the bottom, whilst the lighter ones float. This operation may be facilitated by the action of an agitator kept constantly in motion, so as to disintegrate the matters, whereby the lighter portions are driven towards the edges, or a rotating and diverging bottom may be used to force them out and escape with the current of chloride which is constantly overflowing. It will thus be seen that the inert matters escape at the bottom part in a current of chloride, whilst the coal escapes in a current of chloride at the upper part.

In both cases the mass drawn off falls on a flat surface of wire cloth or of perforated sheet metal, the chloride passing through the holes, whilst the separated matters on either side are drained on an inclined surface, which conveys the drained solution to an ordinary draining well, from which it is drawn by a special pump and conducted to the cistern. By this arrangement it will be understood that the action is constant, and the waste products are collected on one side, and on the other side is collected the coal which has been purified as much as possible. These matters, however, contain chloride, which it is necessary to separate therefrom—first, because if it cost anything whatever the process would not be commercially practicable; and, secondly, because it would interfere with combustion. The chloride solution is used over and over again, and the quantity of water used is also very small.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

We have not lost faith in the eventual success of D'Eresby Mountain, and had we money to spare would buy all the shares we could get at the price named by our correspondent. The delay in getting under the ore discovered in the great stope has been great but unavoidable. It has also been expensive, and when Capt. Waters inspected the mine he recommended sinking the Gorse shaft (which has been done and is now 15 fms. below the No. 5, or deep adit), and then to drive about 30 fms. to get under the ore, by which means it could be worked more efficiently and cheaply. To do this work it was necessary to put up a small engine to pump the water from the shaft up to No. 5. All this has been done, and the No. 6 level driven nearly 3 fms., and it will be pushed on through the softest part of the lode (at 4f. per fm.) as quickly as possible. The agent writes us this week in reference to it, "I can state without fear that if the lode in the No. 6 prove to be only the very same in value as at No. 5 we shall have a mine which can be profitably worked for many years to come." Although the Gorse shaft was sunk 30 fms. away from the rich stope at No. 4 (and proved at No. 5), and the agents are driving in the soft part of the lode for expedition and cheapness, good ore was found in the shaft in the hard part, and the presumption is that it continues from the stope to the shaft, and a cross-cut will be put out to prove this shortly. The sub-division of the shares is at the request of some of the largest shareholders in the mine, and few mines are better held.

On referring to Mr. Watson's "Cornish Notes" in 1861, which first appeared in the *Mining Journal* and then in pamphlet form, we find the following remarks in reference to Wheal Crebor; they show its position and the objects we had in view 19 years ago, just after we had joined the new company:—"Wheal Crebor, a sett large enough for two or three mines. A former company spent 20,000l. in working the northern part of the sett. The present company have been sinking Cook's shaft in order to get into the vein of ore ground which some years ago yielded 150,000l. of copper ore between two cross-courses and *dipped away east*. Cook's shaft is now down 60 fms. below the adit of 10 fms., &c., &c." Bedford United, to the westward, then paid 48,000l. dividend, and was making 300l. per month profit. The whole district was also alive with mines. The discovery of a lode, or an improvement in the Bridge lode of Bedford, which runs through Wheal Crebor well to the north, has taken place, and orders have been given to search for it in Wheal Crebor.

Thomas Tremartha, of Horrabridge, would make himself out a very disinterested person indeed. He does not, he says, own a single share in Wheal Crebor, has no personal motive to serve, but out of pure philanthropy comes forward to correct *erroneous* statements made in regard to the mine! In this we would join him if we knew of any, but when his strictures are principally directed to the "rossette hue" of the meeting caused by a dividend fairly earned and declared in accordance with the Cost Book System, and by a report made for the committee by an authority such as Capt. Rich, of South Condurrow, we are tempted to ask has "Thomas Tremartha" ever inspected the mine himself, and when? If his object were truly to check "reckless speculations in mines without sufficient information" he might, perhaps, cast his eyes elsewhere to some purpose. But we question the philanthropy that singles out such a mine as Crebor for animadversion, especially when it is known the shares have been heavily "bearded" not so very far from Horrabridge.

A correspondent cannot understand how it is that while new schemes without machinery or certain prospects are being "worked up" to several pounds per share Carnarvon shares remain quiet. Now, we do not care to make comparisons, which, as Mrs. Malaprop says, are always "odorous," so we will only say Carnarvon is a *bona fide* property, with all its machinery (erected at great cost) complete, will stand upon its own merits eventually, and does not require puffing now. It is, as we have often said, only 80 fathoms deep, and has returned 100,000l. worth of ore. The sump winze in the bottom of the 80 has a lode in it worth 4 to 6 tons per fathom, and the cross-cut from the 90, at new shaft, is nearing this sump, and will unwater it, and enable the ore to be got at. From this week's report it will be seen that the 90 end, going towards this sump, looks well, and there is the prospect of a new mine altogether in the mountain. When we add to this that the company have in hand upwards of 4000l. clear of every liability a correspondent may make comparisons for himself.

It is generally assumed that the amounts placed as "paid up" in the Share Lists on last page of the Journal are correct, and if another correspondent will point out any errors to the Editor no doubt they will be attended to.

It is a singular thing, considering why the "barrier" or neutral ground, was marked out between South Frances and West Bassett, that both mines should have broken into it, and each have become liable to a penalty of 500l. The riches of these two mines in tin seem to have as great perversity in keeping near the boundaries as they had in copper, when some 20,000l. were spent in law by the two mines. And it was to prevent further litigation and disputes that the "barrier" was drawn and a penalty of 500l. attached to breaking into it.

In the former dispute the boundary between the two mines was marked by a cottage belonging to one John Vincent. From the north-east corner of the cottage to the south or front corner there was a width of about 30 feet, and one of the richest lodes in the district had the perversity to run under the very cottage. The South Frances claimed their boundary as in a line with the north-east corner of the cottage. The West Bassett claimed their boundary line at the south corner. So that both mines claimed this piece of ground, 30 feet wide, and in which ore to the value of 20,000l. was supposed to exist. And to get it they went to law, and the suit was carried on with great bitterness for several years, at a cost of 20,000l. or 30,000l., and eventually decided by the House of Lords. We did our best at the time to calm down the West Bassett people, and in May, 1861, we attended a meeting of South Frances, inspected the cottage and plans, and expressed the opinion that two practical and disinterested parties might have settled the question in a few hours; but the fight went on nevertheless. At that time too the mine was getting into its transition state from copper to tin, and was poor. Some time afterwards a large number of shares was actually relinquished.

NEW PENROSE TIN AND COPPER MINING COMPANY.—The directors have given notice that consequent on the numerous applicants for shares in the company the share list will close on Monday next for Tuesday's allotment, therefore anyone desirous of securing shares should apply not later than by Monday's post. Active operations have already begun at the mine, so that the fine weather may not be lost. The prospects of this property are highly thought of by practical men in West Cornwall, and under the management of Messrs.

Thompson and Sons, of Plymouth, and Capt. J. Curtis local mine is likely to be developed into a paying concern.

TREATING ORE AND REGULUS.

In connection with the treatment of ores of copper, silver, nickel, and zinc, and of regulus of the first four (zinc being as yet found in any regulus) Mr. WILLIAM HENDERSON, of Irvine, has an improved method of obtaining these metals in solution as salts. If the ores contain a notable proportion of magnesia, lime, alumina, or other earthy matter, and silica, he converts them into a regulus of not more than 50 per cent. copper by smelting in a furnace as is well understood by copper smelters. If nickel or other metals are present a sufficient amount of arsenical pyrites is added previous to smelting to prevent these metals passing into the slag. When the ores do not contain much alumina, or alkaline earths, or silica, this smelting operation may be dispensed with. The regulus are now calcined in the usual way to drive off the arsenic, and leave the metals as near as practicable in the form of oxides.

The calcined or burnt ores and regulus are now mixed presented with a variable proportion (according to the amount of metal converted into soluble sulphates) of bisulphate of soda, or technically known in commerce as nitre-cake. This should be previously crushed to a coarse powder and then intimately mixed with the oxidised ore or regulus, and crushed to pass through about the fifth or sixth of an inch clear mesh. The mixed sulphate is now transferred to a calcining furnace and heated to a low red heat with repeated stirrings and turnings over. In short time it will be found that the copper, silver, cobalt, nickel, and some other metals of rarer occurrence are converted into sulphates. The calcination is continued until this has been effected. The charge is then withdrawn and lixiviated, and the metals separated from their solutions in the usual way. If silver is present it is necessary to use water free from chlorine or chlorides. The phosphate of soda may be recovered from the residual solutions by evaporation and crystallisation. Burnt cuprous pyrites may be treated in the same way without previous calcination if well burnt. Potash of potash and other bisulphates may be substituted for the sulphate of soda, wholly or in part, but he prefers soda-salt for its cheapness and low chemical equivalent carrying a larger portion of available sulphuric acid.

Original Correspondence.

UTILISING WASTE BESSEMER METAL.

SIR,—So much loss and annoyance have been caused through ends, old rail bars, and many waste forms of old and new Bessemer steel that makers of Bessemer metal generally will be glad to learn that a cheap and thoroughly practical process has been invented by Mr. W. T. Block, of Hannibal, Missouri, for double heating and reducing two or more pieces into a homogeneous mass to be wrought into merchantable forms. Any suitable forms of Bessemer steel—for example, as rail bars—are reduced to uniform lengths with reference to the purpose to which the finished product is to be applied and arranged in convenient and practical form on the bed of a heating furnace, forming a pile without any bands or ties whatsoever and consisting of as many pieces as may be desired. Having completed this first stage of the process, which may resemble the ordinary use in the art if ties or bands are not used therein, the second stage is commenced, which is the first heating, and this continues until the pile has reached, or nearly reached, the wall for this metal, which is the more readily obtained and perfectly tributed where rail bar or similar forms are used in the pile, of the free access of the heat to the inner surfaces of the pile, being no filling to obstruct free play of the heat or to draw intensity.

Care must be taken to prevent any such increase of heat as will be sufficient to burn the steel. The pile is now ready for the second heating prior to the removal to the hammer or rolls. The doors of the heating furnace are opened, thus tempering the heat, and a sufficient quantity of iron turnings (those from wrought-iron produce the best results) are thrown into it and over the pile and bed of the furnace. The workman then proceeds with the second heating, busseling by rolling the pile over the turnings on the bed of the furnace, the fagots being now in a sort of temporary weld sufficient strong in bond to keep together in form. The turnings which pile gathers up, together with those already thrown over it, will exert a dual influence. First, they protect it from increased heat at this stage; and, secondly, they assist in the welding under the hammer or the rolls. The pile, after having gone through the end of the third stage, second heating, is ready to be passed under a hammer or through a train of rolls after the manner obtains in the ordinary course practised in the art. Any ordinary furnace may be used to carry out this process where the degree of heat can readily be regulated and controlled. In handling the instruments common to the trade are employed.

July 13.

SOUTH WHEAL CREBOR.

SIR,—In handing you this week's report of South Wheal Crebor I beg to observe that everything is progressing most satisfactorily. The lamentable and fatal accident stated in your London papers to have happened here, occurred at East Crebor on Tuesday last. The shaft at South Crebor is some 30 fms. higher above the river than is that at East Crebor. It is, therefore, not possible for such an accident to occur at South Crebor.

Guildhall Chambers, July 16.

J. SMITH, SE.

[For remainder of Original Correspondence see this day's Supplement.]

FORTESCUE (Stannagwyn Mine).—The following is the result of assays of ores from this mine, made by Mr. M. Bawden (Lisbon) and Prof. White (London):—

MIXED UNDRESSED ORES FROM NEAR SURFACE.

Arsenic	11.3 per cent.
Copper	6.1 per cent.
Tin	A trace.
Silver	8.0 ozs. per ton.

If these rough stones were properly dressed as a sample for market they would yield a high percentage.

(Signed) M. W. BAWDEN.

NO. 1 MIXED ORE FROM SHALLOW WORKING.

Tin	12.12 per cent., or 25 lbs. per ton.
-----------	--------------------------------------

W. WHITE (London).	Copper ... 3.20 " 334 "
	Arsenic ... 10.50 " 224 "
	Silver ... 8 ozs. 16 dwts. 9 grs. per ton of stone.

</

TO COLLIER PROPRIETORS.
ANTED, TO PURCHASE, MONTHLY SUPPLIES OF OLD PIT PROPS and SLEEPERS.
The price per ton and quantity to "Timber," Box 163, Post Office, Old.

LEAD AND SILVER SMELTING.

ANTED, ONE or TWO CAPITALISTS to JOIN ADVERTISERS in the ABOVE BUSINESS. Most eligible premises secured on advantageous terms. Highest references given and required.

Address, "Lead and Silver," MINING JOURNAL Office, 26, Fleet-street, E.C.

TO COPPER PYRITES MINING COMPANIES, AND OTHERS.

ANTED, by the Advertiser (who has had the Management of large Pyrites Mines in Spain for the last seven years), a SITUATION as CAPTAIN at home or abroad, the latter preferred.

Particulars, "Lead and Silver," MINING JOURNAL Office, 26, Fleet-street, E.C.

ANTED, an EXPERIENCED LEAD SMELTER, to SUPERINTEND THE LEAD-SMELTING DEPARTMENT OF WORKS.

It is essential that he has had experience in the treatment of low-temperature lead ores in cupolas, and been accustomed to management of

the works, with references, "X," Post Office, Swansea.

ANTED, a PARTNER (active or otherwise) with £4000 to join Advertiser in a well-established IRONWORKS, working a specialty making good profits. Good opportunity for a Gentleman wishing to put a hand in business. None but principals need apply. Good references given and required.

Address, "A. B." W. H. Smith and Sons' Bookstall, London-road Station, Chester.

RESIDENT MANAGER.

THE ORCONERA IRON ORE COMPANY (LIMITED) is REQUIRING for the WORKS and MINES at BILBAO, SPAIN, a gentleman to take the position or RESIDENT MANAGER. He must have good administrative abilities, possess a knowledge of Iron Ore Mining, and be conversant with the Spanish language. Salary not to exceed £500 per annum, apply, by letter only, to the Secretary, at 70, Queen Victoria-street, London.

FOR SALE—SLATE QUARRIES.

TO BE SOLD, the TYN-Y-WERGLODD SLATE QUARRIES, situated in NANTLLE VALE, in the county of CARNARVON, together with the WORKING PLANT belonging thereto.

For particulars, apply to W. W. TOMLIN, 4, St. Ann's Square, Manchester.

VALUABLE SLATE PROPERTY FOR DISPOSAL.

THE ADVERTISER, having DISCOVERED a LARGE VEIN of BLUE SLATE, of excellent quality, and upwards of a mile in length, through his property, would be DISPOSED to OFFER FAVOURABLE TERMS for the WORKING OF or DISPOSAL of SAME.

Apply, in the first instance, to "A." MINING JOURNAL Office, 26, Fleet-street, E.C.

CIVIL AND MINING ENGINEERING.

YOUNG MAN, who has had a first-class course of training as a CIVIL AND MINING ENGINEER, for a period of six years, desires to enter into PARTNERSHIP with a Gentleman who may require such an addition to his business.

Address, "W. A." MINING JOURNAL Office, 26, Fleet-street, London, E.C.

SURVEYS, VALUATIONS, PLANS, &c., &c., of MINERAL and other PROPERTIES executed on the shortest notice. ERECTION of DIPPING, WINDING, and LEAD-DRESSING MACHINERY on the most approved principles. SPECIAL "LEWING" MACHINES, &c.

Applications, estimates, &c., carefully considered, by ALFRED WILLIAMS, Greenfield, Van Lead Mines, Llanidloes, and Amlwch, Anglesey.

MINE AND CIVIL ENGINEER (THEORETICAL AND PRACTICAL) desirous of ENGAGEMENT. Abroad preferred. Had extensive experience in British Colonies, United States, South America. Mines, railway, and other work. Speaks Spanish. Foreign and English references.

Address, "J. G. D." MINING JOURNAL Office, 26, Fleet-street, E.C.

NORTH MOLTON MINING COMPANY (LIMITED).

I HAVE STILL TWO HUNDRED AND TWENTY-FIVE shares of £1 each, fully paid, in the above valuable property FOR SALE. Will sell £5 each from each an immediate purchaser to clear.

Address, J. WILSON, 7, Cumberland-terrace, Finsbury Park, N.

EAST CHIVERTON SILVER-LEAD MINE.—SELLERS OF SHARES in the above, state NUMBER FOR SALE and price.

Address, "S. B." care of Chapman and Coade, Auctioneers, Valuers, and Transfer Agents, 31, Lamb's Conduit-street, W.C.

MR. W. B. COBB, STOCK AND SHARE DEALER, 29, BISHOPSGATE-STREET, LONDON, E.C.

Business transacted in every description of Stocks and Shares. Fortnightly accounts opened on receipt of usual cover.

BANKERS: ALLIANCE BANK (Limited).

MINE "EL CALLAO," GUAYANA, VENEZUELA.

COUPONS OF SHARES 322
GOLD IN BARS—Produce in the month of January, 1880, remitted Ozs. Messrs. Baring Brothers and Co. 3337-11

The Treasurer of the Company, G. BARNEWITZ, | The President of the Company, A. SICCIONI.

MINE "EL CALLAO," GUAYANA, VENEZUELA.

COUPONS OF SHARES 322
GOLD IN BARS produced in the month of February, 1880, and re- Ozs. dited to Messrs. Baring Brothers and Co. 4098-62

Dividend distributed in the month for each coupon \$100

The Treasurer, G. BARNEWITZ, | The President of the Company, A. SICCIONI.

THE MONONA MINE (LIMITED).

Notice is hereby given, that the Directors have this day DECLARED an INTERIM DIVIDEND of TEN SHILLINGS PER SHARE on the 8000 shares of the Company, payable free of income tax, on and after the 31st July next. The Transfer Books will be closed from July 24th to the 31st inclusive.

By order, W. J. LAVINGTON, Secretary.

16a, Austinfriars, London, E.C., 14th July, 1880.

THE NEW PENROSE TIN AND COPPER MINE COMPANY (LIMITED).

This property was reported by the late Sir R. Murchison and Sir Henry de la Beche, F.R.S., with proper development, would class with the richest in the country. The company is now actively engaged in developing the mine. From one lode alone seaward over £11,000 worth of copper was sold. The sett contains seven lodes—three of tin and four of copper, making, with each other, twelve intersections, besides lead and iron lodes, and a valuable bed of chima stone, and all in maiden or unwrought ground, but amply proved to the eastward.

Ful and detailed prospectuses, reports, and application for shares should be made to the Managers, THOMPSON and SONS, 14, Old Town-street, Plymouth.

THE NEW PENROSE TIN AND COPPER MINE COMPANY (LIMITED).

Capital £12,000, in shares of £1 each: deposit 2s. 6d. per share on application. The major portion of these shares having been applied for, NO APPLICATION for SHARES will BE ENTERTAINED after MONDAY, the 19th inst.

Prospectuses, containing full particulars, with reports, names of directors, &c., from the Secretary and Managers, Messrs. THOMPSON and SONS, 14, Old Town-street, Plymouth. An important feature is that the mine has been already started to work.

MESSRS. J. TAYLOR AND CO MINING ENGINEERS AND INSPECTORS, 85, LONDON WALL, LONDON, E.C., Have Agents in England, Scotland, Wales, and on the Continent. BUSINESS in VIRNEBERG Shares.

Just Published, post free 1½ stamps.

HOW TO MAKE MONEY.—An invaluable guide to persons of capital. The publication contains much reliable information for investors, and some special recommendations sure to succeed. By acting according to prescription money must be made.

Published by THOMPSON and SONS, 14, Old Town-street, Plymouth.

In the High Court of Justice—Chancery Division.

JONES v. CHORLEY.

CEFN CAM SLATE QUARRY, MERIONETSHIRE,

Equi-distant about nine miles from Dolgelly and Barmouth.

The PROPERTY covers an area, including the LANDS attached, of about 380 acres, and comprises a WHARF on the River Mawddach, a manager's house, a smithy, store room, barracks for about 50 men, and other necessary buildings. The slate is of good quality, of excellent colour, hard, and durable, and of capital cleavage; held from the Crown for a term of 30½ years from the 5th April, 1852, at a rental, now payable, of £100 per annum, merging into a royalty of 1-12th. By a judicious outlay in improving the transit or the construction of a tramway and opening the quarry there is every probability that it might be made a profitable concern. With possession.

MR. BENTLEY JAMES BRIDGEWATER (of the firm of MESSRS. Debenham, Tewson, Farmer, and Bridgewater) WILL SELL the ABOVE, at the Mart, on Tuesday, July 27, at Two o'clock.

Particulars of MESSRS. BARRELL, RODWAY, and BARRELL, Solicitors, 11, Lord-street, Liverpool; of MESSRS. LAST and SON, Solicitors, Albert Buildings, Queen Victoria-street; and of the Auctioneers, 30, Cheapside, where an extract from the lease and a plan of the property, as well as specimens of the slates, can be seen.

TO BE SOLD, BY AUCTION, pursuant to an order of the High Court of Justice, Chancery Division, made in an action BURNABY v. BOUTLBE, 1853, D 86, with the approbation of Vice-Chancellor BACON, by Mr. W. M. TAYLOR (the person appointed by the said Judge), at the George Inn, Alfreton, in the county of Derby, on Friday, the 30th day of July, 1880, at Twelve o'clock at noon, all that

VALUABLE MINERAL AND FREEHOLD ESTATE

Belonging to the Trustees of the Will of the late Sir WILLOUGHBY WOLSTAN DIXIE, Bart., and situate in the parishes of SELSTON, Nottinghamshire, and ALFRETON and CODNOR PARK, Derbyshire, as shown on the surface and mineral maps accompanying the particulars and conditions of sale.

The MINERALS will be OFFERED FOR SALE in One Lot apart from the surface. Underlying the estate are all the well-known seams of COAL and IRONSTONE worked by the adjoining collieries, which are the most valuable seams in Derbyshire and Nottingham, including the TOP HARD, MAIN SOFT, DEEP HARD, FURNACE, and BLACK SHALE. The lower seams are practically untouched, and extend under about FIVE HUNDRED AND EIGHTY ACRES. The upper seams, with the exception of the Top Hard, occupy about from FOUR HUNDRED AND FIFTY to FIVE HUNDRED ACRES. The schedule accompanying the particulars and conditions of sale specifies the quantity of each seam believed to exist. The workings of the Pinxton, Riddings, and Mexborough Collieries with new pits divided in the neighbourhood approach and pass through the various blocks into which the estate is divided on the mineral map.

The FREEHOLD SURFACE consists of about SIX HUNDRED AND THIRTY ACRES of LAND, comprising many farmhouses, homesteads, and outbuildings, cottages, and excellent building sites, especially in the neighbourhood of the railway stations of the Midland and Great Northern Railways, where no other land is available for building purposes, and also adjoining to the new pits sunk in the southern part of Selston, where such accommodation is greatly wanted for the increased population.

LOT 1 comprises the MINERALS, which will be offered first in One Lot.

LOTS 2 to 7 comprise about SIX HUNDRED AND THIRTY ACRES of FREEHOLD LAND, divided into Lots of from EIGHTY to FORTY ACRE FARMS, down to small plots suitable for building.

There are many lots laid out expressly to suit the wants of building societies, &c.

The railway accommodation is unequalled, no less than five railway stations of the Midland and Great Northern Railways lying on or close to the estate, securing rapid and cheap communication; while the excellent new roads laid out by the Enclosure Commissioners across all parts of the parish of Selston have greatly enhanced the value of all property in this neighbourhood.

Particulars and conditions of sale, with plans of estate, surface and mineral, may be had on application of MESSRS. FREE, REEVE, BLUNT, and ROWATT, Solicitors, Leicester; of MESSRS. MILES and TAYLOR, Friar-lane, Leicester; of MESSRS. AUSTEN, DE GEX, and CANDLER, Solicitors, 4, Raymond's Buildings, Gray's Inn, W.C.; of MESSRS. PRATT and HODGKINSON, Solicitors, Newark; of MESSRS. CREE and SON, Solicitors, 13, Gray's Inn-square, London, W.C.; and of MR. JOHN WITHERS, Selston, near Alfreton; and of the Auctioneer, Bowring Green-street, Leicester.

DENBIGHSHIRE.**PARISH OF RAUBON.**

PRELIMINARY ADVERTISEMENT of intended SALE, BY AUCTION, at the Queen's Hotel, Chester Railway Station, on Saturday, the 28th of August, 1880, at Two for Three o'clock in the afternoon, in One or more Lots, as may be arranged, of A VALUABLE FREEHOLD RESIDENTIAL ESTATE, known as "GARDEEN."

Situate near the town and within a mile of the first-class Great Western Railway Station of Ruabon, and within easy distance by rail or road of the towns of Wrexham and Llangollen.

The Estate lies within a ring fence, and comprises the excellent gentlemanly residences of "GARDEEN LODGE" and "PENYARDDEN," with extensive outbuildings, gardens, pleasure grounds, and plantations, and several COTTAGES and excellent pasture, arable, and wood LANDS, and a VALUABLE QUARRY of FREESTONE, and contains in the whole about 160 acres.

At the same time, it is intended to OFFER FOR SALE the VALUABLE MINES and VEINS of COAL, IRONSTONE, and other MINERALS underlying the Estate, which are in lease to and actively worked by a company.

Adjoining the Estate are the properties of Sir Watkin Williams Wynn, Bart., William Cornwallis West, Esq., Henry Dennis, Esq., and others, and the turnpike-road from Wrexham to Ruabon forms the north-eastern boundary.

Plans and particulars are in course of preparation, and may shortly, with any other information, be obtained from—

Messrs. CHURTON, ELPHICK, and CO., Auctioneers, Chester; or from Messrs. LONGUEVILLE, JONES, and WILLIAMS, Solicitors, Oswestry.

VALUABLE COLLIERY FOR SALE IN YORKSHIRE, working the well-known BARNSLEY THICK COAL.

Apply, J. and P. HIGSON, 18, Booth-street, Manchester.

ITALY—VALUABLE MINING PROPERTY.

THE PROPRIETOR of a VERY VALUABLE SILVER-LEAD MINE in ITALY is desirous of meeting with a party to join him, with capital, or with the view to FORMING A COMPANY, to take over and work the mine on a larger scale. The greater part of the purchase-money would be taken in shares.

The mine is well explored, developed, and is now in full work. Has first-rate dressing-floors, worked by steam and water power; very good houses for managers and workmen; and considerable landed property. The ore sold to the founders has given 38 per cent. of lead, with 150 ounces of silver and 1 ounce of gold per ton of ore.

The mine is situated close to the high road, and only two and a half miles distant from the railway stations, and offers to capitalists an unusually good opportunity for highly profitable enterprise.

Apply to "P. B." MINING JOURNAL Office, 26, Fleet-street, London, E.C.

FOR SALE, ONE NEW SHOLL'S PATENT PNEUMATIC STAMP for Tin Ore, Gold Quartz, &c.

Price and particulars on application to THWAITES BROTHERS, Vulcan Works, Bradford, Yorkshire.

FOR SALE, A FIRST-CLASS SECOND-HAND 80 in. CORNISH PUMPING ENGINE, with several 11-ton BOILERS.

Apply, Wm. BENNETTS, Roskear, Camborne.

TO CAPITALISTS AND INVESTORS.

LADY ASHBURTON SILVER MINING COMPANY (LIMITED), at

£1 2s. 6d. per share.

FLINTSHIRE GREAT CONSOLS (LIMITED), at £1 7s. 6d. per share.

BETTWYS-Y-COED LEAD MINING ASSOCIATION (LIMITED), at £1 5s. per share.

ONLLWYN AND DULAS COLLIERIES (LIMITED), at £2 5s. per share.

SOUTH WHEAL CREBOR (LIMITED), at £1 10s. per share.

For particulars on the above properties, apply to—

JOHN BANTING ROGERS,

ST. CLEMENT'S HOUSE, LOMBARD STREET, LONDON, E.C.

Monthly Investment Circulars post free on application.

TO BE LET, BY PRIVATE TREATY, THE GRASSINGTON LEAD MINES, near Skipton, Yorkshire.

Address, The Devonshire Offices, Carleton, Skipton.

TO BE LET, THE CONONLEY LEAD MINES, near Skipton.

Address, The Devonshire Offices, Carleton, Skipton.

TO BE LET, UPON ROYALTY, A VEIN OF LEAD ORE, situated in MONTGOMERYSHIRE, a few miles from some of the most productive undertakings.

Capital £12,000, in shares of £1 each: deposit 2s. 6d. per share on application.

The major portion of these shares having been applied for, NO APPLICATION for SHARES will BE ENTERTAINED after MONDAY, the 19th inst.

Prospectuses, containing full particulars, with reports, names of directors, &c., from the Secretary and Managers, Messrs. THOMPSON and SONS, 14, Old Town-street, Plymouth. An important feature is that the mine has been already started to work.

MESSRS. J. TAYLOR AND CO MINING ENGINEERS AND INSPECTORS, 8

[JULY 17, 1880]



PARIS, ORDER OF THE CROWN OF PRUSSIA. FALMOUTH, BRONZE MEDAL, 1867.



FALMOUTH, SILVER MEDAL, 1867.

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the Geographical Congress, Paris, 1875—M. Favre, Contractor, having exhibited the McKean Drill alone as the MODEL BORING MACHINE for the ST. GOTTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gotthard Tunnel, where

THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecutive weeks, ending February 7, was 24·90, 27·60, 24·80, 26·10, 28·30, 27·10, 28·40, 28·70 metres. Total advance of south heading during January was 121·30 metres, or 133 yards.

In a series of comparative trials made at the St. Gotthard Tunnel, the McKean Rock Drill continued to work until the pressure was reduced to one-half atmosphere ($7\frac{1}{2}$ lbs.), showing almost the entire motive force to be available for the blow against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these Machines for the SEVERN TUNNEL; the LONDON AND NORTH-WESTERN RAILWAY for the FESTINIOG TUNNEL; and the BRITISH GOVERNMENT for several Public Works. A considerable number of Mining Companies are now using them. Shafts and Galleries are driven at from three to six times the speed of hand labour, according to the size and number of machines employed, and with important saving in cost. The ratio of advantage over hand labour is greatest where the rock is hardest.

These Machines possess many advantages, which give them a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL USE THROUGHOUT THE WORLD FOR MINING, TUNNELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the most portable—the most durable—the most compact—of the best mechanical device. They contain the fewest parts—have no weak parts—act without SHOCK upon any of the operating parts—work with a lower pressure than any other Rock Drill—may be worked at a higher pressure than any other—may be run with safety to FIFTEEN HUNDRED STROKES PER MINUTE—do not require a mechanic to work them—are the smallest, shortest, and lightest of all machines—will give the longest feed without change of tool—work with long or short stroke at pleasure of operator.

The same Machine may be used for sinking, drifting, or open work. Their working parts are best protected against grit and accidents. The various methods of mounting them are the most efficient.

N.B.—Correspondents should state particulars as to character of work in hand in writing us for information, on receipt of which a special definite answer, with reference to our full illustrated catalogue, will be sent.

PORTABLE BOILERS, AIR COMPRESSORS, BORING STEEL, IRON, AND FLEXIBLE TUBING.

The McKean Drill may be seen in operation daily in London.

MCKEAN AND CO.

ENGINEERS
OFFICES,

5, RUE SCRIBE, PARIS

MANUFACTURED FOR MCKEAN AND CO. BY
MESS P. AND W MACLELLAN, "CLUTHA IRONWORKS,"
GLASGOW.

WIRE ROPES.

JOHN AND EDWIN WRIGHT



ESTABLISHED 1770.

MANUFACTURERS OF EVERY DESCRIPTION
OF IMPROVED
Patent Round and Flat Wire Ropes

From the very best quality of Charcoal and Patent Steel Wire. Galvanised Wire, Ropes for Ships' Rigging, Galvanised Signal and Fencing Strand, Copper Rope, Lightning Conductors, Colliery Ropes and Steam Plough Ropes made from the best Patent Improved Steel Wire.

PATENT ROUND AND FLAT HEMP ROPES,
Hemp, Flax, Engine Yarn, Cotton Waste, Tarpauling, Oil Sheets, Brattice Cloth, Wagon Covers, &c., &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.

UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.

CITY OFFICE—No. 5, LEADENHALL STREET, E.C.

All communications to be forwarded to the BIRMINGHAM ADDRESS.

PIERCE S. HAMILTON, PRACTICAL GEOLOGIST,
SURVEYOR, AND MINING ENGINEER AND AGENT, OFFERS HIS
SERVICES in either of these capacities to those interested or desirous of investing in
MINING PROPERTY in the PROVINCE OF NOVA SCOTIA or elsewhere in
the DOMINION OF CANADA.

Having for years filled the administrative position of Chief Commissioner of Mines for Nova Scotia, and having both before and afterwards been himself largely engaged in Mining operations, Mr. HAMILTON has had exceptionally good opportunities of informing himself as to the variety, extent, and character of the mineral deposits of that Province, and as to the most economical and effective method of working them.

ADDRESS—PIERCE S. HAMILTON, HALIFAX, NOVA SCOTIA,
DOMINION OF CANADA.

CLAYTON AND SHUTTLEWORTH

STAMP END WORKS, LINCOLN, & 78, LOMBARD STREET, LONDON.

GOLD MEDALS, AND OTHER PRIZES,

Have been awarded to CLAYTON AND SHUTTLEWORTH at various International Exhibitions of all Nations, including LONDON, 1851, 1862, PARIS, 1855, 1867, 1878, VIENNA, 1857, 1866, 1873, for their

STEAM ENGINES (Portable or Fixed)
THRESHING MACHINES.
GRINDING MILLS.
TRACTION ENGINES, &c.

Catalogues in English and in all the Continental Languages free on application.

The Royal Agricultural Society of England have awarded
EVERY FIRST PRIZE TO CLAYTON AND SHUTTLEWORTH
For Portable and other Steam Engines since 1863, and Prizes at every meeting at which they have competed since 1849.

JOSEPH FIRTH AND SONS' NEW PATENT BRICK-MAKING MACHINE

EMBRACES THE FOLLOWING ADVANTAGES, VIZ.:—

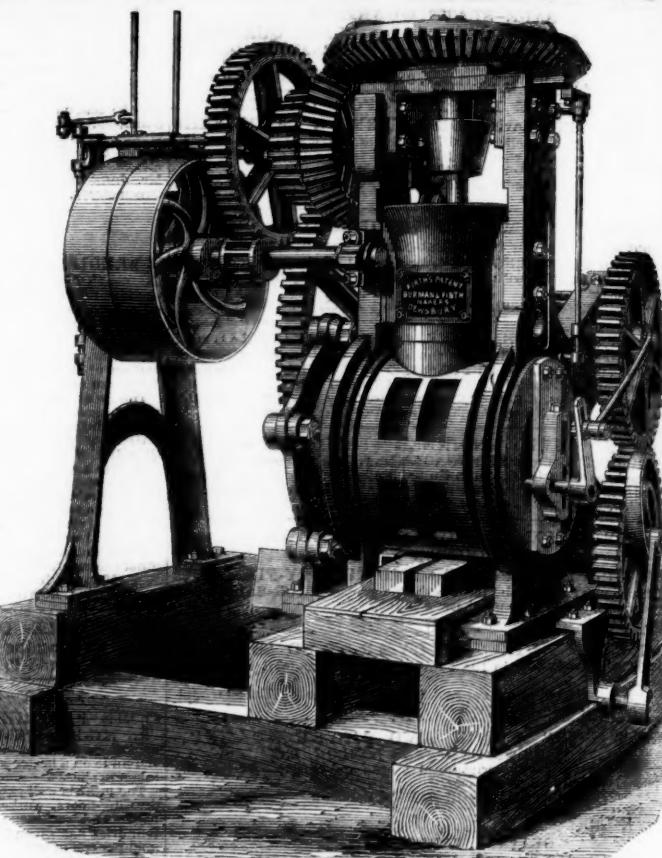
SIMPLICITY, STRENGTH, AND DURABILITY.

COMPACTNESS AND EXCELLENCE OF MECHANICAL ARRANGEMENTS.

LARGE PRODUCING CAPABILITIES.

MODERATE COST.

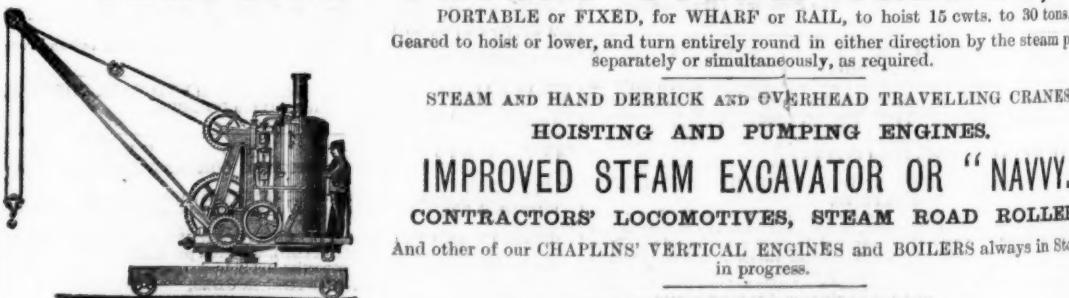
It makes two bricks at once, and will make 12,000 to 14,000 Plastic Pressed Bricks per day, hard enough to go direct to the Kiln without drying; or it will make the bricks thoroughly plastic if required. For Works requiring a Machine at less cost the Machine is made to turn out one brick at once, and is capable of producing 9000 bricks per day.



The Machine can be seen at work daily at the Brickworks of the Patentees, Joseph Firth and Sons, Webster Hill, Dewsbury, as also their Patent Gas Kiln for Burning Bricks, which possesses the following amongst other advantages, viz.:—Economy in Fuel, Rapidity and Quality of Work, even Distribution of Heat, and Total Consumption of Smoke.

CHAPLINS' PATENT STEAM CRANES,

PORTABLE or FIXED, for WHARF or RAIL, to hoist 15 cwt. to 30 tons. Geared to hoist or lower, and turn entirely round in either direction by the steam power, separately or simultaneously, as required.



STEAM AND HAND DERRICK AND OVERHEAD TRAVELLING CRANES.

HOISTING AND PUMPING ENGINES.

IMPROVED STEAM EXCAVATOR OR "NAVY."

CONTRACTORS' LOCOMOTIVES, STEAM ROAD ROLLERS,

And other of our CHAPLINS' VERTICAL ENGINES and BOILERS always in Stock or in progress.

PATENTEE AND SOLE MANUFACTURERS

ALEX. CHAPLIN & CO., CRANSTONHILL ENGINE WORKS, GLASGOW.
London House: 63, Queen Victoria-street, London, E.C.

British and Foreign Safety Fuse Company,

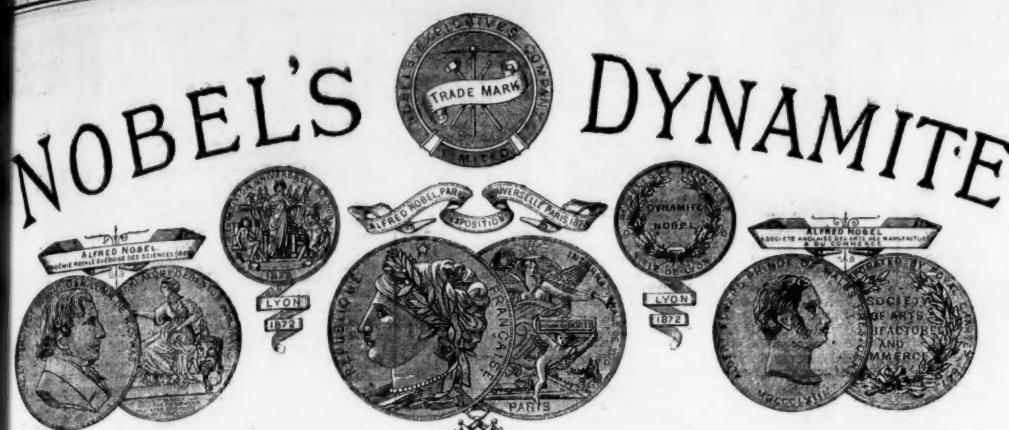
REDRUTH, CORNWALL,

MANUFACTURERS OF

SAFETY FUSE, FOR MINING AND QUARRYING PURPOSES.

PRICES ON APPLICATION.





Manufactured and sold by
NOBEL'S EXPLOSIVES COMPANY (LIMITED), 149, West George
Street, Glasgow.

AGENTS EXPORT J. and G. HORNE, 85, GRACECHURCH STREET, LONDON, E.C.
FACTORIES—ARDEER WORKS, STEVENSTON, AYRSHIRE.
WESTQUARTER WORKS, POLMONT STATION, STIRLINGSHIRE.

TONITE, OR COTTON POWDER. THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES.

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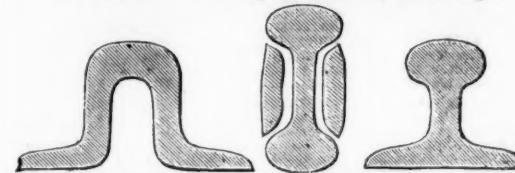
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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Prid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
10000 Caren, t, Cardigan*	2	0	2	1 1/2	0 4	0 2 0 Oct. 1878
10000 Carn Brea, c, t, Illogan†	56	7	6	72	0 75 80	0 308 0 1 0 Feb. 1874
10240 Devon Gt. Consols, c, a, Tavistock†	1	0	0	12 1/2	12 1/2	0 117 13 0 0 10 0 May 1880
4236 Dolcoath, c, t, Camborne	10	14	10	53	53 55	0 117 11 3 1 10 0 June 1880
6400 East Pool, t, c, Illogan	0	9	9	34	35 1/2	33 1/2 19 15 3 1 2 6 June 1880
40000 Glasc. Car., c* (30000 sh. £1 pd.)	10000	155	pd.	1 1/2	1 1/2	0 13 10 0 0 6 Aug. 1878
7500 Goraeed and Merlin Con., t, Flint	2	10	0	2 1/2	2 1/2	0 5 0 0 5 0 Aug. 1877
15000 Great Laxey, t, Isle of Man*	4	0	0	19	18 1/2	19 1/2 26 2 0 0 8 0 July 1880
6400 Green Hurst, t, Durham*	0	6	6	6	6 6 1/2	2 10 0 0 5 0 Mar. 1880
20000 Grogwinion, t, Cardigan*	2	0	0	3	2 1/2	3 1/2 0 14 10 0 1 10 Aug. 1878
2800 Isle of Man, t, Isle of Man*	25	0	0	—	—	0 82 5 0 0 10 0 Feb. 1879
20000 Leadhills*, t, Lanarkshire	6	0	0	3 1/2	3 1/2 4	0 15 0 0 3 0 Mar. 1878
4000 Lisburne, t, Cardiganshire	18	15	0	37 1/2	35 37 1/2	0 601 0 1 0 1 0 June 1880
10000 Mellenar, c, Hayle*	2	6	0	5 1/2	5 1/2 5 x d	0 18 6 0 2 6 July 1880
9000 Minera Mining Co., t, Wrexham*	5	0	0	11 1/2	11 1/2	0 68 13 2 0 4 0 May 1880
20000 Mining Co. of Ireland, cl, c, t*	7	0	0	2 1/2	2 1/2 2 1/2	0 24 3 0 0 2 6 June 1880
8000 Mona, c, Anglesey	5	0	0	15	15 16	0 10 0 0 10 0 July 1880
5328 North Busy, t, c, Chacewater	0	5	8	1 1/2	1 1/2 1 1/2	0 3 4 0 0 10 Oct. 1878
11829 North Hendre, t, Wales	2	10	0	—	—	0 3 10 0 0 7 6 Mar. 1880
8063 Ditto	1	0	0	—	—	0 7 0 0 3 0 Mar. 1880
6000 Pennant, t, bur, North Wales*	5	0	0	3 1/2	3 1/2	0 10 0 0 5 0 Mar. 1878
12000 Phoenix United, t, c, Link	10	10	3	4 1/2	4 1/2	0 2 6 0 2 6 Mar. 1880
18000 Pr. Patrick, s-l, (als. 12000 pf. 10 p.c.)	1	0	0	—	—	0 18 6 0 2 2 0 July 1880
10000 Red Rock, t, Cardigan	2	0	0	1 1/2	1 1/2	0 4 0 0 2 0 0 Jan. 1878
12000 Roman Gravels, t, Salop*	7	10	0	11	10 11	0 8 1 0 0 5 0 Apr. 1880
4000 Rhylman, t, Wales	10	0	0	—	—	0 5 0 0 5 0 Feb. 1880
512 South Cadron, c, St. Cleer*	1	5	0	100	85 95	0 749 0 1 0 1 0 July 1880
6123 South Condurrow, t, Camborne	6	5	6	10 1/2	10 10 1/2	0 7 2 0 0 10 0 April 1880
9000 South Darren, t, Cardigan	1	10	0	3	2 1/2 3	0 4 0 0 2 0 0 April 1880
4500 South Wheal Frances, t, Illogan†	7	12	4	14 1/2	13 14 1/2 x d	0 40 15 6 0 10 0 July 1880
12000 Tankerville, t, Salop*	6	0	0	4 1/2	4 1/2 4 1/2	0 17 8 0 5 0 Jan. 1877
6000 Tincroft, t, Pool, Illogan†	11	10	0	17 1/2	17 1/2 18 1/2	0 50 8 0 5 0 May 1877
15000 Van, t, Llanidloes*	4	5	5	21	21	0 24 18 0 7 6 July 1880
3000 West Chiverton, t, Perranzabuloe†	19	15	0	—	—	0 55 55 0 10 0 Feb. 1878
512 West Tolgus, c, Redruth	95	10	0	55	50 55	0 33 0 1 0 0 Jan. 1879
12000 West Wheal Seton, c, Camborne†	25	10	0	21	18 20	0 223 0 7 6 April 1880
12000 Wheat Crebrier, c, Tavistock	2	4	0	6	5 1/2 6 x d	0 6 3 0 2 6 July 1880
1024 Wheat Eliza Consols, t, St. Austell	18	0	0	—	—	0 10 0 0 4 0 0 May 1880
4255 Wheat Eliza, t, St. Agnes	5	4	6	5 1/2	5 1/2 5 1/2	0 12 14 0 5 0 May 1880
3000 Wheat Peevor, t, Redruth	7	11	0	29 1/2	30 1/2 31 1/2	0 5 6 0 1 5 0 June 1880

FOREIGN DIVIDEND MINES.

Shares.	Prid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35000 Alamillos, t, Spain†	2	0	0	1 1/2	1 1/2	0 2 0 9 0 1 0 Apr. 1880
130000 Almada and Trito Consols, s†	1	0	0	5 1/2	5 1/2	0 6 3 0 1 0 May 1876
20000 Australian, c, South Australia†	7	7	6	13 1/2	13 1/2	1 3 6 0 2 0 Aug. 1879
20000 Copper Mining, t, South Africa	7	0	0	40	38 40	0 38 7 6 1 0 0 June 1880
35000 Cesena Sulph. Co., Romagna, Italy*	10	0	0	—	—	0 1 1 0 0 1 0 Aug. 1879
100000 Ciapio, c, Chili* (420 shares)	17	0	0	9	7 1/2 8 1/2 x d	0 7 14 5 0 3 0 July 1880
23500 Eberhardt and Aurora, t, Nevada*	10	0	0	3	2 1/2 3	0 1 8 0 0 3 0 Dec. 1877
70000 English & Australian, t, S. Aust.	2	10	0	1 1/2	1 1/2 1 1/2	0 15 1/2 1 1/2 0 1 0 Mar. 1880
44125 Ditto, Mortgage Bonds	20	0	0	—	—	7 per cent. per ann. Jan. 1880
22500 Ditto, shares	10	0	0	12 1/2	12 1/2 12 1/2	0 10 0 0 10 0 Apr. 1880
40000 Santa Barbara, g, Brazil	0	10	0	2	1 1/2 2	0 10 9 0 2 0 Apr. 1880
12000 Scottish Australian Mining Co.*	1	0	0	2 1/2	2 1/2	0 15 7 0 9 0 1 0 Dec. 1879
80000 Ditto, New	9	10	0	1	7 1/2	0 13 4 0 1 4 Mar. 1880
50000 Sentinel, s-l, Ariège, France	1	0	0	—	—	0 2 0 0 2 0 0 Jan. 1880
22500 Sierra Buttes, g, California*	2	0	0	1 1/2	1 1/2 1 1/2	0 18 9 0 1 0 0 Mar. 1880
40625 Ditto, Plumas Eureka	2	0	0	2 1/2	2 1/2 2 1/2	0 2 7 0 0 3 0 Oct. 1879
2253000 St. John del Rey† (£5 Stock and multiples dealt in).	220	230	0	12 1/2	12 1/2 12 1/2	0 10 0 0 10 0 Apr. 1879
20000 Tolima, g, Colombia	5	0	0	—	—	0 1 3 0 0 4 0 Mar. 1880
25000 Victoria* (London), g, Australia	1	0	0	—	—	0 0 13 1/2 0 0 7 1/2 June 1879
2100 W. Prussian (5500 pref. sh. £10 pd.)	10	0	0	10 1/2	10 10 1/2	0 2 10 0 0 8 0 Apr. 1880

* Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.	Prid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
25600 Aberllyn, t, bl, Carnarvon	1	0	0	1 1/2	1 1/2	0 1 1/2 0 1 0 1 1/2
12000 Assheton, t, Carnarvonshire	5	0	0	—	—	0 1 1/2 0 1 0 1 1/2
11583 Bedford Univ., * c, Tavis [£1 lib.]	0	4	0	—	—	0 1 1/2 1 1/2 1 1/2
25000 Belwoda*, t, Roche	1	0	0	—	—	0 1 1/2 1 1/2 1 1/2
600 Bendigaid, s-l, Wales	10	0	0	13	13	0 12 13
30000 Bettws-y-Coed, t (20000 sh. issued)	1	0	0	—	—	0 1 1/2 0 1 0 1 1/2
8000 Blaen Caelan, t, Cardigan	3	0	0	—	—	0 1 1/2 0 1 0 1 1/2
3339 Blue Hills, t, c, St. Agnes	4	6	6	4 1/2	4 1/2 4 1/2	0 1 1/2 0 1 0 1 1/2
30000 Boddiris*, t, bl, Denbighshire	1	0	0	—	—	0 1 1/2 0 1 0 1 1/2
20000 Botallack, t, c, St. Just	128	5	0	20	18 20	0 18 20
10000 British, s-l, Wrexham	2	0	0	3	2 1/2	0 3 2 1/2
20000 Bwlch United, * (1 £1 sh.) Cardigan	0	12	0	6	3	2 1/2 3
50000 Cambrian, s-l, Cardiganshire	2	0	0	—	—	0 1 1/2 0 1 0 1 1/2
10000 Court Grange United*, t, Llanrwst	28	14	9	8	7 1/2	0 7 1/2 8 7 1/2
15500 Devan, * (125000 sh. iss.)	0	1	0	—	—	0 1 1/2 0 1 0 1 1/2
20000 Denbighshire Consolidated, * t	3	0	0	—	—	0 1 1/2 0 1 0 1 1/2
12020 D'Errest Mountain, t, bl, Llanrwst	20	0	0	—	—	0 1 1/2 0 1 0 1 1/2
12030 Derwent, * t, Durban	4	0	0	—	—	0 1 1/2 0 1 0 1 1/2
100000 Devon, * t, bl, Tavistock (125000 iss.)	0	1	0	—	—	0 1 1/2 0 1 0 1 1/2
12300 Devon Great United* (24)	1	0	0	—	—	0 1 1/2 0 1 0 1 1/2
21300 Devonshire, t, Lydford	1	0	0	—	—	0 1 1/2 0 1 0 1 1/2
100000 Dubby Syke, t, Durham*	0	17	6	7 1/2	7 1/2 7 1/2	0 1 1/2 0 1 0 1 1/2
8000 East Botallack, t, St. Just	0					